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ABSTRACT

This volume compiles descriptions of the work being done by rural students in 13 schools/sites with grants from the Annenberg Rural Challenge. The work reflects a belief in education that privileges the local nature of learning and connects schools and communities for their mutual benefit. Entries include focused lessons, long-term projects, and fully developed curricula, as well as practice-oriented stories and related personal reflections. Each entry includes contact information; academic content area; grade levels; length of time; a description; and, in some cases, samples of work. Projects include arts projects based on the local environment or culture, water and biodiversity projects, local history projects, and comprehensive projects that incorporate pedagogy of place into the curriculum or that promote deeper integration of school and community. (SV)

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LIVING AND LEARNING in Rural Schools and Communities

LESSONS FROM THE FIELD

A REPORT TO THE ANNENBERG RURAL CHALLENGE

RURAL CHALLENGE RESEARCH AND EVALUATION PROGRAM
HARVARD GRADUATE SCHOOL OF EDUCATION

RC 022297

2

Living and Learning
In Rural Schools and Communities

Lessons from the Field

Rural Challenge Research and Evaluation Program
Harvard Graduate School of Education
Cambridge, Massachusetts
February 1999

We wish to acknowledge all the Rural Challenge teachers, school administrators, students, parents and community people who provided the stories that are included in this report.

Table of Contents

- **Map** iii
- **Introduction** 1
- **Arts Projects**
  - Winter on the San Juan Ridge 6
    Yuba Watershed Alliance
  - Larry Long Community Performance 12
    Program for Rural School and Community Renewal
    PACERS (Program for the Academic and Cultural Enhancement of Rural Schools)
  - Place-Based Art Program 17
    Llano Grande Center for Research and Development
- **Water and Biodiversity Projects**
  - "Gone to River" 24
    Yampa Valley Legacy Education Initiative
  - Tidepooling Adventures 41
    North Coast Rural Challenge Network
- **History Projects**
  - World History Oral History Project 56
    Llano Grande Center for Research and Development
  - The Craftsman Houses of Falconer, New York 63
    The Selborne Project
  - The Ghostwalk 65
    The Vermont Rural Partnership
  - The Tombstone Project 67
    Program for Rural School and Community Renewal
  - Fryestory Productions 69
    Partnership Rural Initiative in Maine

Table of Contents

♦ Comprehensive Projects

Curriculum Invention in Rural Places 76
School at the Center

Pedagogy of Place: A Plan for Learning 94
Llano Grande Center for Research and Development

Akula Website Story 104
Alaska Rural Challenge/Rural Systemic Initiative

Guidelines for Project Proposals 116
North Coast Rural Challenge Network

Rural Charter School 128
Center for School Change

A School and Community in the Process of Deeper Integration 132
Program for Rural School and Community Renewal

Sites Included in this Report

Partnership Rural Initiative in Maine
Center for School Change
Vermont Rural Partnership
Program for Rural School and Community Renewal
North Coast Rural Challenge Network
The Selborne Project
School at the Center
Yuba Watershed Alliance
Yampa Valley Legacy Education Initiative
Appalachian Rural Education Network
PACERS Cooperative
Alaskan Rural Challenge/Rural Systemic Initiative
Llano Grande Center for Research and Development

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INTRODUCTION

If we were to summarize key qualities we would hope to see in educated citizens as we head into the twenty-first century, they might well bear a striking resemblance to qualities we associate with learners of a past era. Well-educated individuals would, first of all, be aware of the various social, geographic and environmental contexts in which they live and work. Second, they would understand that school is part of a larger community and not a separate entity. Finally, and perhaps most importantly, very early in their school-age years, they would learn that education is as much about citizenship as it is about scholarship.

Such contextual knowledge would be the ground of larger cultural, political and economic landscapes. Conceivably, forging a stronger connection between the immediate social context and the larger, more diverse, ecological contexts would help facilitate a movement from autonomous individuals to public citizens. These local landscapes and contexts are complex. They contain multiple relationships that cross the conventional boundaries of private and public, history and vision, folk knowledge and scientific knowledge. Following the contours of these contextual maps more closely, we might see instances in which the lines between individual rights and democratic living overlap or merge. Such instances may occur when community needs outweigh those of the individual or when the actions of an individual compel the community to respond. Democracy in this case does not refer simply to a political platform or system of beliefs; it refers, instead, to an active system of communal engagement around values, beliefs, power, and decision-making. It may be best understood as a series of on-going negotiations that go beyond traditional political conversations of rights and responsibilities. This type of grounded democracy makes explicit the importance for citizens to negotiate their needs, both individual and collective, in light of the social, moral, political, and cultural history of the land and its people, as well as their vision for the future.

Myles Horton (1991)[1] says that "education is what happens to the other person, not what comes out of the mouth of the educator" (p. 131). Horton's point -- that education "is what happens" -- underscores the active nature of learning. While this essay begins with some thoughts about the philosophical nature of education, our interest as a research and evaluation team lies at the intersection of philosophy and practice. If we want to be effective practitioners, nurturing the growth of schools and communities together, we have to know what system of

[1] Horton, M. *The Long Haul: An Autobiography*. New York, NY: Doubleday Books.

beliefs we bring to bear on our practice. Or, as a participant at a the recent Rendezvous put it, "you gotta' know what stirs your pot."

Our "pot" is full of many things -- memories of people and places, challenges met, and challenges yet to meet, hopes for new directions, and the promise of new possibilities for the Rural Challenge work. We have collected numerous examples of this work from sites across the country. Our intent in sharing this volume is to help deepen the network of relationships and practice across the Rural Challenge. Included in this "pot" of knowledge and ideas is a philosophy of education that raises serious questions about what we have done thus far to ensure the sustainability of rural life. The work we present in our annual report, *Living and Learning in Rural Schools and Communities*, and in this companion volume is good work; it holds great promise for the future of rural schools and communities in particular, and for education, in general. Central to this philosophy is the belief in a way of doing the business of education that privileges the local nature of learning. Our bias for situated knowledge -- connecting learning to place, and place to future -- is the organizing principle for this volume. What follows is a compilation of focused lessons, long-term projects, fully developed curricula, as well as practice-oriented stories and related personal reflections. A quick overview of the examples will give the reader a sense of the richness and diversity of the work being done by rural students. It is these diverse expressions of place-based learning -- how it plays out in schools and communities across the country -- that makes this work so exciting and so promising. The practices of education included in this companion volume are our way of sharing the wealth of creativity and learning that is very much alive and "happening."

Our suggestion is to read each of these examples with an eye towards possibility as well as an eye towards discovering the distinctive stamp of the local context in which it was created. As you read, we would like you to try to imagine locale developing from simple background or backdrop to a complex set of relationships and objects that shape and nourish these curricular activities. Each setting has its own unique circumstances that make certain projects possible or not. For instance, multi-generational oral history projects work best in places where there is a thriving community of elders with whom students can interact over time. This is not to suggest that these curricula are not transferable to other settings. But, these projects will clearly grow differently in the soils of Alaska, the Lower Rio Grande Valley or the Outer Banks of North Carolina. This limitation, however, is also its beauty.

Rather than introduce each entry separately, we have included brief fact sheets with information about key elements and individuals involved in the respective projects. Enjoy!

Arts Projects

"Listen to the songs in your soul.

- Winter on the San Juan Ridge
  Yuba Watershed Alliance

- Larry Long Community Performance
  Program for Rural School and Community Renewal

  PACERS Cooperative

- Place-Based Art Program
  Llano Grande Center for Research and Development

"WINTER ON THE SAN JUAN RIDGE"

NAME OF RURAL CHALLENGE SITE: *Yuba Watershed Alliance*

SCHOOL: Grizzly Hill Middle School
ADDRESS: P.O. Box 529
TOWN: North San Juan
STATE: California
ZIP: 95960
TELEPHONE: (530) 265-9052
FAX: (530) 265-3049

CONTACT PEOPLE:

- Diana Pasquini, Arts Teacher and Rural Challenge Coordinator (North San Juan, CA)
- Ralph Henson, Technology Teacher and Photographer

ACADEMIC CONTENT AREA: Visual and Performing Arts

GRADE LEVEL(S): 5th – 8th

LENGTH OF TIME: 4 months

DESCRIPTION[2]

As a result of budget cuts, art programs were scaled back in the Twin Ridge Elementary School District (made up of two K-3 schools and one middle school). The most severely affected was the Grizzly Hill Middle School (housing grades 4-8). The cut-back was understood to be a basis for many families choosing to send their children to the more arts rich charter schools in Nevada City, some 45 miles away. Consequently, the district made the decision to reconstruct and expand the local arts program which then became a focus for the Yuba Watershed Alliance. Diana Pasquini, a long time resident of San Juan Ridge (arts advocate, former member of the Fire Board and School Board), a teacher aide in the K-3 Oak Tree School, and the Yuba Watershed Alliance Site Coordinator for San Juan Ridge, was sent to Grizzly Hill to work with the reconstituted arts program.

In 1996-97, a classroom was refurbished as an art room, specifically for visual arts. A series of related electives were offered to all 5th - 8th grade students and the Yuba Watershed Alliance, supported by the Grizzly Hill School Site Council, developed a singing elective. For

[2] Taken from notes and descriptions by Diana Pasquini.

the first time in Grizzly Hill history, the 1997 September "Back to School Night" included a display of children's art work and a performance by the newly formed Grizzly Hill Singers, accompanied by piano, flute and African drummers (from the new drumming elective). An appreciative community welcomed the performance with a standing ovation!

Site coordinator, Diana Pasquini, and musician, Marc Ryan, set to work in the fall (1997) with the 5th, 6th, and 7th grade boys and girls that comprised the Grizzly Hill singing elective class to produce a CD that would be released in time for Christmas. The singers, with Pasquini and Ryan, composed two original songs. The title song, "Winter on the San Juan Ridge," expressed a juxtaposition of the harshness of winter and the warmth of a family:

The roads are rutted.
The Yuba's flooded.
The trees are creaking, loaded heavy with snow.
My daddy's truck died,
Down by the creekside.
We've got to walk wherever we go.
But Mama's singing
Just as she's bringing
Fresh homemade cookies, piping hot from the stove.
I'm happy to the bone
In my foothill home.
It's winter on the San Juan Ridge.

The second original song, "Peace," is a song in which the children expressed their wishes for peace for all humankind, as well as indigenous animal species.

The two original songs were performed and recorded at the school. Students' renditions of five traditional holiday songs, "Jingle Bells," "Dreidel Song," "Deck the Halls," "Here We Come A-Caroling," and "Silent Night," were also included on the recording. Two songs were performed a cappella while the rest included Ryan's guitar accompaniment. A local guitarist and a flutist also volunteered their services. The last song, "Peace," ends with temple bells, played and recorded at the Ring of Bone Zendo, courtesy of community member, Gary Snyder.

Although featuring mostly the compositions and performances of the Singers, the CD was actually a school-wide arts project. Every student in the school was told about the project and asked to contribute. Students submitted poems, stories, and essays on winter, holiday traditions, and peace. These writings were compiled and edited. They were then read by their

authors or "designated readers" and recorded. This entire process, from the creation of an elective, to the completion of the recording, was accomplished in one school quarter.

The next phase of production was to mix and master all the recorded material at a local recording studio. The studio's owner, Paul Emery, and the engineer, Marc Ryan, donated approximately 40 hours of studio time to this undertaking. Once the sound was "in the can," work began on the visual elements of the production. Ralph Henson, the school's technology teacher, and Ryan, sound technician, were invaluable to the success of this production.

Working with students in the photography elective, Henson produced the photographs that appear on the CD's insert booklet and tray card. Students in his technology classes helped with typing and word processing the insert which included the words to the songs. (A high school student even volunteered time to come in after school and work on the computer.)

Matt Light, a seventh grade student, and a member of the visual arts elective class did the cover drawing for the tray card. Art students were asked to submit drawings for consideration. Light's drawing of a solitary little house, nestled peacefully in the midst of snow shrouded hills and trees, perfectly expressed the theme of the production.

A contest was held to select a logo for Grizzly Hill School. All students were encouraged to enter their designs. The entire staff and student body then voted on the final entries, which had been selected by the Grizzly Hill School Site Council. Sixth grader, Katie Griffis, produced the winning design, a drawing of a mother grizzly bear and her cub, "walking over a hill." Griffis' logo appears on the CD label. The label is silk-screened in blue and black, Grizzly Hill's school colors.[1]

In mid-November, the mastered recording, along with Griffis' logo prototype, traveled to a manufacturer in Sacramento. At the same time, the computer disc with the graphics was delivered to Lectra Media, a printing company in Nevada City. Although there was a printing charge, a young employee volunteered to cut and fold 500 inserts and tray cards for free. Another sympathetic printer perforated the tray cards for a very modest fee. The completed graphics were rushed to Sacramento.

On December 6th, 500 finished CDs were picked up from the manufacturer. Miraculously, the deadline was met! December seventh was the day of the community's annual artist's show at the North Columbia Schoolhouse Cultural Center. Even though a howling,

[1] Katie Griffis' and Matt Light's works were honored in March 1998 in a display at the Eric Rood Government Center in Nevada City. The CD was displayed in an exhibit at the county-wide Youth Art Show. This was the first time that a sound recording was ever included in that show, which is dedicated to showcasing visual arts in the Nevada County schools.

lashing winter storm had kept a lot of folks home that day, 40 CDs were sold, and those involved with the production were in business.

For the next couple of weeks, sales were brisk. The Oak Tree and Grizzly Hill School secretaries volunteered to sell CDs out of the school offices. CDs were also sold at two schools (Oak Tree and Grizzly Hill), following their winter music programs. A gift shop in Nevada City continues to display and sell the CDs.

Because of its release at holiday time, many CDs left the area as Christmas and Hanukkah gifts. There was considerable positive feedback from community members who heard from far-away family and friends. One woman bought 14, one for each of those on her holiday shopping list. Another sent the CD to a teacher friend who lives in Orange County, California. The teacher used it as a teaching aid. She noted:

> *We have lots of sources and materials for teaching about different cultures in other countries, but not for teaching about other cultures in our own country. I used the CD as a teaching tool. My children loved the stories, especially the one about the boy whose sled ran into a patch of blackberries. They had never conceived of a life in which children have the freedom to walk to school or to one another's homes. None of our children had ever even seen snow.*

By the end of the year, "Winter on the San Juan Ridge" had earned about $1500. A non-profit organization, "Children Reaching Out," was created to receive the monies. The hope is that the CD will be the first item in a catalogue that offers many works of art, all created and marketed by children. Proceeds from the sales of these articles are intended to support the foundation, which is being founded to link the Arts with community service in the Twin Ridge schools.

The production, "Winter on the San Juan Ridge," reaped monetary benefits, but more importantly it instilled a sense of pride among students, staff, and community members. At the beginning of the Grizzly Hill School Winter Program, all who were involved in making the CD were asked to stand as they were mentioned. First the singers stood. Then the writers stood. The readers, the artists, the musicians, the photographers. . . one by one, everyone in the gymnasium was standing. The entire school community was on its feet, cheering and whistling! It was an enormously charged moment, filled with pride and joy!

Based in Nevada City, FM radio station, KVMR, acquired a copy of the CD and played it extensively throughout the holiday season and received many phone calls and a few letters which extolled the virtues of the children's work, particularly on Christmas Day. The children touched the hearts of many!

While the CD was being produced and marketed, the Grizzly Hill Singers were being booked for a series of four live performances. The Singers were asked to be the opening act at an evening of performances on December 1, World AIDS Day. They chose the song, "What a Wonderful World." The boys and girls proudly stepped up onto the stage of the old Nevada Theater in Nevada City, introduced themselves and sang out with such sweetness that many in the audience were brought to tears. Their performance received the longest and loudest applause of the evening; and the students were honored by their principal for the community service they performed.

In mid-December, the Singers performed in North San Juan, at a community-wide evening of Christmas music and readings at the 140-year-old North San Juan Methodist Church. The Singers debuted their two original songs, "Winter on the San Juan Ridge," and "Peace," as well as performing "Here We Come A-Caroling." The response was terrific, particularly among the "old timers" who were congratulating them and wanting to purchase CDs. "I don't have a CD player," said one man, "but I want one anyway. I'm going to send it to my brother just so he can see how wonderful this community is!"

The Singers did their last live performance in January for a Martin Luther King celebration on KVMR Radio's Children's Show. They sang an original song, "Martin's Dream," that had been written for the occasion. The singers also delivered a very moving rendition of "We Shall Overcome." Eighth grade drama student, Abby Chroman, delivered an introduction to the music, as well as a speech on Martin Luther King, Jr. These two songs and the readings were broadcast live to "our largest audience to date, the listeners to the KVMR's Children's Special on Martin Luther King." When the children completed their songs, the two hostesses of the program were so overcome with emotion that they could not continue the broadcast without taking a break.

The Martin Luther King Day broadcast also included a pre-recorded segment made at Oak Tree School. The entire student body sang three old spirituals -- "This Little Light of Mine," "Gospel Train," and "Swing Low, Sweet Chariot." The third grade class wrote sentences on the value and meaning of freedom. Their readings were then recorded. The recording was mixed and aired just prior to the live performance of the Grizzly Hill Singers. The Oak Tree-Grizzly Hill collaboration, "The Freedom Project," delighted Ridge families and received a very encouraging response from radio listeners, who once again phoned KVMR to voice their approval.

On March 4th, another Oak Tree-Grizzly Hill collaborative project was aired on KVMR. The theme of this program was Peace, a direct offshoot of the CD's success, and it featured the song, "Peace." Grizzly Hill 5th grader, Zoe Koenig, was interviewed. She read her letter on

behalf of the entire Grizzly Hill student body that accompanied the CD to the United Nations and the White House. Grizzly Hill's segment was preceded by a pre-recorded performance of Oak Tree School's second grade students singing, "Let There Be Peace on Earth," and reading their "vows for peace." In their vows, these second grade girls and boys challenged listeners to make our world a better place by performing simple acts of kindness.

"LARRY LONG COMMUNITY PERFORMANCE"

NAME OF RURAL CHALLENGE SITE:
Program for Rural School and Community Renewal

SCHOOL: South Park Elementary
ADDRESS: 1816 Valley Drive
TOWN: Belle Fourche
STATE: South Dakota
ZIP: 57717
TELEPHONE: (605) 892-2091
FAX: Same
WEBSITE: belle.tie.net

CONTACT PEOPLE:
- Larry Long, Musician/songwriter
- Paula Janovy, Teacher
- Alberta Krush, Teacher

GRADE LEVEL(S): 4th

LENGTH OF TIME: one week

NAME OF RURAL CHALLENGE SITE:
PACERS Cooperative

SCHOOL: Meek Elementary School
ADDRESS:
TOWN: Arley
STATE: Alabama
ZIP: 35541

CONTACT PEOPLE:
- Larry Long, musician/songwriter
- Sherrill Williams, Teacher

GRADE LEVEL(S): 5th

LENGTH OF TIME: one week

DESCRIPTION

Cultural events which link the history of the local area, the stories that long time inhabitants carry with them, have proven to be important community-school exchanges. They help bring communities together, across generations, building that larger sense of mutuality.

Larry Long, a Minnesota folk singer and cultural interpreter, has been particularly helpful to a variety of Rural Challenge sites interested in community celebrations. He works closely with children and young people in the collection of local stories, which he and the students put together in musical form (making use of folk music traditions) or present orally with some musical accompaniment. Larry Long has established a model that can be followed by many communities using local musicians who work with school and community groups in a variety of workshops and through film to adapt the material to the local setting.

We present below several pieces of Larry Long's work that might be instructive. The initial narrative is an account developed by students through interviews. The prose which follows represents the lyrics of a song put together out of that narrative. In Long's format, the person who is the inspiration for the song or presentation, if still living, is provided a flower and a place of honor in the celebration.

From the South Park Elementary School in Belle Fourche, South Dakota

Faye Kennedy

My name is Faye Kennedy. I was born July 20, 1919. I graduated from Belle Fourche High School. I've worked with the newspaper for more years than I can remember. Any time you report a birth, meeting, anything with people you have an interest in, you are contributing to your community. It tells the legacy of those who have gone before.

The Belle Fourche Post you get on Wednesday morning is a 95 year old newspaper. It started out in 1902 and had been in a number of locations before it moved to its present site. The Belle Fourche Bee is a hundred and six years old. The first copy was laid out on the floor of the Belle Hotel.

I've had many rewarding experiences working for the newspaper. One experience I particularly remember is going on a refueling mission from Ellsworth to Washington. Newspapering is fun!

I lived in the small community of Fruitdale. We did everything together and, growing up in hard times, made our own recreation. We built a golf club around Orman Lake. We put on our own dances and had our own ice skating rink. Fruitdale was named by Grandpa Sterns. There were choke cherries and he brought apple trees. He named it Fruitdale.

My best advice to you is to enjoy your family. Be a good sharing and cooperative family. Get all you can out of education. That is the answer to your future life. Follow the golden rule.

Building Community

Anytime you
Report a birth
Or anything
Of worth
To the people that you have
An interest in
You are building
Community
By sharing the legacy
Of those who've gone before
With those after

Like the girl
Who could not see
But somehow
She could read
Music with her ears
On the piano
For the world to enjoy
May every girl and boy
Find the joy
To pull them through
Tomorrow

In a family
Growing up
Through hard times
Without enough
We all learned
How to live together
Pickling pickles
Put up hay
After all
The bills got paid
We would dance
And we would sing
Through the seasons

Yesterday
Up 'till now
I still love
My little town
Beautiful forks
At two rivers
Working on
The daily news
My best advice for you
Is to share
And get yourself an education

Music: Larry Long
Words: Larry Long with Paula Janovy's and Alberta Krush's 4th Grade, South Park Elementary, Belle Fourche, South Dakota

Inspired by Faye Kennedy
Copyright Larry Long Publishing 1997/BMI

From the Meek Elementary School in Arley, Alabama

Celia Sampley

My name is Celia Sampley. I was born June 18, 1939.

Our family was farmers until the 1960s. I grew up on a farm with a frame house. We had cows, chickens, and pigs, and raised cotton and corn and that's how we made our living.

My mother was a wonderful person. She wrote a lot of books. I thought she knew everything, and she probably did.

We made skirts out of cow cumber leaves and drank water out of the spring from a cow cumber leaf cup. Next time you go in the woods, make you a cup and drink some water.

Don't forget the dead; just remember them with love. My mother loved decorations. Sometimes preachers don't like decorations because people miss church, but decorations have not stopped. It's a southern tradition.

Let me tell about family reunions. My mother had all kinds of relatives and never forgot last names and went back to great aunt so-and-so. At a reunion, you just get together and bring all the cousins and food and eat like a true southern person. Eat and grow.

If you go in the woods, there are a lot of plants and trees put here for a purpose. My Mama could take you in the woods and show you star root, snake root, sassafras tea. We didn't have toothbrushes. There's a black gum tree in the woods. Peel a limb off and it's crunchy like a brush. We'd brush our teeth with it.

My great grandmother was a full-blooded Cherokee Indian and an herb doctor. My great grandfather served in the Civil War. Another grandmother was a German Jew.

People called us red-neck hillbillies. It was so far from here to anywhere else. We were poor, but we didn't know it. We didn't know there were things out there that we had never seen or heard of.

Love God. Love your family. Love your friends and your teachers because they are listening. Read and read, because reading will help you. If you read, you will know how to do the rest of it.

Through A Lifetime Of Giving

She had frames built by her father
That hung from the ceiling
In the house and made a lining
Hooked around the wood
Picking seeds out of the cotton
For the quilt she was making
I don't know how she did it
But she always did it good

Her great grandmother an herb doctor
Her grandfather a soldier
In the Civil War
He passed away too soon
Down by the bubbly waters
She put her hand down under
Planting by the seasons
Beneath the circling moon

(Chorus)
Love God
Love your family
Love your friends
Love your teachers
Love the books you're reading
If you read you will know
How to do the rest of living
Through a lifetime of giving
Listen to the singing
Of the songs in your soul

Without penicillin
She would use whatever
Star and snake root
And sassafras tea
When hurt she used mullein
On my body when swollen
Without a toothbrush
We used a twig from a black gum tree

Taking baths in a washtub
Outside in the summer
Sleeping between four quilts
In the winter to keep warm
Killing hogs to make chittlins

Making lard in a wash pot
For the chittlin supper
In these hollers I call home
(Chorus)

Her grandmother full blooded
Cherokee from Carolina
Who traveled down through Georgia
She was not alone
Even though she was married
She could not be buried
Beside my great grandfather
To mix with the white man's bones

We were poor but didn't know it
There were things we never heard of
People call us Redneck Hillbillies
Though my Mom part German Jew
Who believed in decoration
To honor your loved ones
To stand beside the waters
Of the love they have for you
(Chorus)

Words & music by Larry Long with
assistance from Sherrill Williams's 5th grade of Meek School, Arley, Alabama.

Inspired by Mrs. Celia Sampley
Copyright Larry Long 1998 / BMI

"PLACE-BASED ART PROGRAM"

NAME OF RURAL CHALLENGE SITE: *Llano Grande Center for Research and Development*

SCHOOL: La Villa High School
ADDRESS: East Highway 107
TOWN: La Villa
STATE: Texas
ZIP: 78562
TELEPHONE: (956) 262-4715

CONTACT PEOPLE:
- Elmira Cura, Art Teacher

ACADEMIC CONTENT AREA: Visual arts

GRADE LEVEL(S): 10th – 12th

LENGTH OF TIME: full academic year

DESCRIPTION

La Villa is located in the southernmost tip of the Rio Grande Valley, a few miles from the Mexican border. The landscape is flat, delta land, broken occasionally by palm trees and vast agricultural fields. The surrounding semi-desert environment seems an unlikely climate for agriculture with its low rainfall, high summer temperatures and persistent natural vegetation that includes mesquite trees and prickly pear cactus. Only in the last ten years has the economy begun to shift from agriculture to technology in support of the manufacturing plants across the border, health care, and the growing tourism from "winter Texans."

La Villa high school has 250 students, eighty percent of whom are from migrant families who travel to Michigan and Ohio in the late spring and return in mid-October. The high school is on a block schedule with 90-minute class periods. The school day begins at 7:30 a.m. Students have breakfast in their homeroom, which includes all school silent reading, and then proceed to their classes. The students have four classes a day and are divided into either honors, gifted and talented or the regular program. There are the traditional academic subjects and electives required for graduation -- including one year of art.

Elmira Cura, who has been teaching art at the high school for twenty years, is a former migrant worker from La Villa. She teaches art history and appreciation, the basics of drawing, drawing with different media, painting, airbrushing, and ceramics. Her classes range from 15 to 20 students.

Nearly all of her students are migrants who show up in October and leave in April. She has designed her classroom so that whenever the students are in school they are welcome to "hang out" in her room. Although she introduces them to art styles of every historical period and the techniques behind those styles, she insists that the students paint and draw things they have experienced. That is why a number of paintings show snow and mountain scenes which remind them of places in the North in which they have worked.

Inspired by the Llano Grande project, Elmira Cura has begun to focus on the use of local materials to construct paintings, sculpture and decorative objects. She has the students use the tough bark of the palm trees as a canvas for a painting or a mask. They construct Christmas wreaths from the cornhusks that women use to make tamales; each wreath is then decorated with local objects.

Each piece of student art tells a story of students' lives as migrant workers -- stories ripe with symbolism and history. One of her students painted a picture that features a mesquite tree which is found all over the delta. It is so durable that it can go through years of drought and never die; it is always green and has a lot of texture. The image and the landscape in the picture are in the artistic style of surrealism introduced by Salvador Dali. The face in the mesquite tree is of his ancestors who cleared the valley to make room for the citrus crops and vegetables. This student gave his painting (his first ever) to his grandfather in Mexico.

When Mrs. Cura begins a project, she sits and talks with the students about what is important to them. Her format often follows a theme that begins with the student's culture and weaves in the personal experiences of each individual. For example, she asks them to:

- Describe characteristics in style and technique found in Mexican artworks from the past and present.
- Point out details that show information about the Mexican culture, characteristics of the land and region, and events influencing history.
- Discuss expressive qualities found in these works of art and identify the ideas, moods and feelings expressed in the paintings.
- Relate the Mexican artworks to real life experiences and community activities. (If a student has been a migrant farm worker all his/her life, a painting depicting his/her family working in the fields would be a good subject to paint and might motivate a feeling of pride for who they are and where they come from.)
- List a variety of trees and plants commonly found in our region, community and backyards.
- Brainstorm ideas such as migrating, farming, going to the beach, the parties with the piñata or the weekend cockfights.

Mrs. Cura teaches the students to work in different media such as pencil or charcoal, acrylic painting on masonite or canvas, wood burning, collage, and airbrushing. She develops their skills in perspective, blending color, texture, dimensions and symbolism.

As a life-long resident of La Villa, Mrs. Cura is also deeply involved in the life of her community and in particular the Catholic Church. Each year she designs and sews a large banner for the Spring mass that is held for the departing migrant workers.

When the migrants get ready to leave La Villa, the priest at the Catholic Church plans a huge celebration. There is a large procession before the service and the person leading the procession carries a large banner attached to a long pole. This service is very important, particularly to the farm workers. The workers come with everything they will bring on their journeys to be blessed. The priest blesses each individual as well as their cars, their tools, the apples, grapes, tomatoes -- the things they will harvest. The workers won't leave until the priest has had a chance to bless them.

In the spring of 1998, the church asked Mrs. Cura if she could make the banner in two days. She pointed out that it usually takes her a month to do a banner and only then if she works until two or three in the morning. Undaunted, she brought the priest's request to her students since most of them are migrants and a lot of their families were planning to leave. The students all volunteered their time to help construct the banner.

> *Eight students worked on this project. We started brainstorming what it is like when you go to the fields. What do you see? If you are going to pick fruit, what kind of fruit? If you are going to use tools, will they be hoes, rakes, spades? For ideas, they went through my portfolio with all kinds of religious art, and through magazines looking for pictures of farmworkers, farm machinery. I didn't start with the religious, I waited to see what they would say. I know that we have the Virgin Mary, the Guadalupe, who is a part of the culture, but should we include her in this banner 'cause on this banner we are going to have hills and fields. There was a debate about which image to use. Some favored the Virgin of Guadalupe and others said we should go with Jesus. We got the rough draft, and the drawings and we pulled it off. The banner was actually used in three churches last spring in three different communities.*

Her success with this project led to a more ambitious request from the Catholic Church in December of 1998.

> *Since we did that banner, Father Emanuel called one of the ladies in charge of a retreat we were going to have over the weekend. The church wanted to produce a Christmas play and they needed something for the background, a manger, not the people, just the setting like all the props of a stage. We found these HUGE cardboards which we got free and then I asked the new principal for permission to let the students work on this project. She asked if I was going to give the students credit for their work and I said 'of course.'*
>
> *So we started thinking and within about a week's time we put it together. We stayed late in the afternoons and they did a very, very good job. This was a different group of kids than did the banner. Before I knew it, I had kids who were not Catholics who were asking if 'we could use it in our church.' So before you knew it we had three churches that were going to use it. And these things were so big we had to take them apart. I remember taking them to the Parish Hall where they were going to be used; we had to undo them from the back and had somebody go in the back of the truck to hold them down. We had two large angels that had to be suspended with fishing lines and then the main parts of the backdrop.*

Another church in Monte Alto asked to use the backdrop for its Christmas parade and a second Christmas play. They put the backdrop up on a float and were awarded first place. One of the students who painted the scenery was also in the parade. She made sure the event at her church could count toward her community service hours.

> *Everything is fine with the school and the parents because some of the parents go to the church and they feel pride having their kids take part in this. So again, there is a great connection between the community, the church and the school.*

In the spring of 1998, six towns in this region -- Edcouch, Elsa, San Carlos, La Villa, Monte Alto and Edinburg -- formed ten community groups for the purpose of applying to the Kellogg Foundation for a MIRA grant (Managing Information in Rural America). Each community group consisted of students, parents, community members, priests and teachers. After discussing the most urgent needs of their communities, the ten groups submitted their proposals. Kellogg awarded them a $200,000 grant, and followed up with a $175,000 grant to support the public library, the Boys and Girls Club, and a new non-profit, Niños Y Niñas, a community development organization that supports the work of the Llano Grande Project. La Villa High School is part of the MIRA Community Cluster for the South Valley.

The La Villa community group recently submitted a proposal to the MIRA Cluster for $15,000. They want to establish a community art center. After attending the summer training workshops which helped them identify community assets and learn how to design a project that they could manage, the consensus was that supporting the work of the town's many artists was the best use of the money. The students were most persuasive in explaining why they needed a place to work on their art after school, a place to do their homework, and a place to teach the younger students art techniques. Sandra Morales is one of the students who is leading the La Villa project.

> *When we went to the first MIRA meetings, we were just thinking about how to make the community center a place where teens could go hang out or whatever. But what is the point of just being there and sitting there and not doing anything. Once we started going to more meetings, and once Mrs. Cura got involved, we got to thinking that we could make it an art center. I envision on Saturday mornings these students who are familiar with art and art activities, that they would run the center on Saturday mornings for the children of the community. I imagine the high school kids being mentors to the younger children in the community and start the basics of art early.*

Adrian Lazo, one of Mrs. Cura's talented artists, is already receiving commissions from local businesses and patrons. Adrian and Mrs. Cura are planning to get the entire community involved in renovating and decorating their new art center.

> *About fourteen of us are interested in decorating the walls with spray cans, making nice drawings and paintings. Sometimes the people come and ask us if they can have a little section to draw something. (Adrian Lazo)*

> *We were talking in class with Mrs. Cura and we said that we could draw a mural where everything would be numbered and the paints would be numbered so that anybody from the community that wanted to help paint the mural, they could do it. Everything would be numbered or color-coded. (Sandra Morales)*

We would prepare the paints like, lets say we were doing a sunset and you have a range from red, red-orange, orange, yellow-orange to yellow. So these would be different tones that the center students would have to pre-mix and put them in containers with a corresponding number. Even the grandmothers could come over and bring tacquitos for the break and help us paint. We wanted to do this so the whole community takes ownership of the center. (Elmira Cura)

Adrian and the other students on the La Villa community team would also like the art center to be a drug-free alternative for younger kids. As Adrian states, "people have been on drugs all through high school. They think it makes them cool; they don't care about the school or the community. We are going to have to start with the younger kids." In addition to art, some students envision doing plays adapted by David Rice, a local author. David's stories are about Edcouch, Elsa, Monte Alto and La Villa and they inspire students to draw and write about their own experiences of living in this area. All of the students believe the art center has great potential to get kids off the streets, inspire art and writing, and build confidence and self-esteem. Mrs. Cura hopes that the power of art may even influence boys and girls to confront and reject the drug culture.

Say there is a little boy in the art center and he is looking at Adrian's paintings [about the consequences of drugs]. They make an impact; they make him think. He comes home and knows that his dad is dealing with these drugs. Maybe this boy will tell his dad, "Dad do you know that this stuff that you are doing can hurt you? Can you do this or that?" Maybe the father will realize, 'look what I am doing,' stop and think because it came from his son; because his son saw something at the center that affected him.

Water and Biodiversity Projects

It is the threat that we will lose communities together – our past and our future.

- Gone to Rivet
  Yampa Valley Legacy Education Initiative

- Tidepooling Adventures
  North Coast Rural Challenge Network

"GONE TO RIVER"

NAME OF RURAL CHALLENGE SITE: *Yampa Valley Legacy Education Initiative*

SCHOOL: Craig Middle School
ADDRESS: 915 Yampa Avenue
TOWN: Craig
STATE: Colorado
ZIP: 81625-2038
TELEPHONE: (970) 824-3268
FAX: (970) 824-6655
WEBSITE: http://moffatsd.org/riverwatch/ and http://moffatsd.org/riverwatch/index2.html

CONTACT PERSON:
- Norm Yoast, Teacher, Craig Middle School
- Charlie Leech, Teacher, Hayden High School

ACADEMIC CONTENT AREA: Science

GRADE LEVEL(S): 8th

LENGTH OF TIME: ongoing data collection throughout the year

DESCRIPTION[4]

"It is the thread that weaves our communities together -- our past and our future."

Tucked away in the northwest corner of Colorado, the Yampa River Valley stretches out 165 miles from the timberland of the continental divide to the arid deserts of Utah. Four of the five partner school districts are connected by the river -- Hayden, Moffat County, SoRoCo, and Steamboat Springs. (Granby is the fifth partner district.) Their partnership focuses on the river and its adjacent habitats as a resource and laboratory for learning. The Yampa River is considered by many ecologists and environmentalists one of the most biologically intact rivers in the West. As such, it provides a particularly fertile focus of inquiry for the student researchers who call the Yampa River Valley home.

From the Flat Tops Wilderness Area of Colorado, the Yampa River winds its way past lush hay meadows to Steamboat Springs. From there, it continues on through the valley's three canyons -- Juniper, Cross Mountain, and Yampa -- where it connects with the Green River in Dinosaur National Monument. The Yampa River is greatly impacted by groups/organizations that rely on the river for their livelihoods.

[4] Compiled from conversations with Norm Yoast.

Historically, such groups have had competing interests in the valley and, therefore, until recently, cooperation around its preservation has been limited. The diverse interests of coal mining, tourism, agriculture, cattle associations, as well as large-scale operations such as the Hayden power plant and the Division of Wildlife, rely in many ways on the Yampa River. Today, communal concern for the river and recognition of its significance to the area has fostered a working relationship among the various constituencies across the valley. In the words of one community member, "We're all sitting in the same room talking."

WANTED: RESEARCHERS WITH WADERS

The Department of Wildlife asked if the students of the Yampa Valley "would help them out." They needed information about the River and didn't have enough people to collect, tabulate and compile the necessary data. Students and teachers from South Routt High School and middle school, Steamboat Springs High School and middle school, Hayden High School and Craig Middle School responded to the need. To provide a comprehensive river analysis, students measured pH, alkalinity, hardness, dissolved oxygen, metals, total dissolved solids, and water temperatures at different points along the Yampa. Contributing to the preservation of a healthy ecosystem, and in so doing furthering the livelihoods of citizens dependent on the bounty of the Yampa River is an activity we do not often associate with students in a classroom. While to many of us it might be a novel experience, for Rural Challenge sites engaged in place-based work, collecting data and conducting research for a federal environmental agency is becoming more commonplace. As students immerse themselves in real and necessary work, their contributions engage them in a meaningful stewardship of the land and its resources.

Detailed knowledge of the Yampa and its surroundings is a vital component of the Yampa Valley Legacy Education Initiative. Project coordinator, NormYoast, a teacher at Craig Middle School, drove his students over 90 miles down river to collect aquatic insects for a study. They were gone all day. "Students stake off an area of the river and kick for three minutes (to stir up the sediment). They take up all the bottom stuff and they wash the insects onto a screen. Then they come to the bank to count the number of insects that were in that area." Acknowledging the fact that at some points along the River students have to go in deeper water, Yoast asserts, "They have nice insulated waders on so they don't get too cold!"

The insect collecting component of this project resulted from Yoast's willingness to address student inquiry and, in so doing, expand upon the initial Department of Wildlife request for data collection. "[The kids] wanted to know what kinds and how many insects were in the river so I expanded the lesson. We used the insects as a water quality indicator because the different types of insects that you have will tell you if your river is healthy. It will also give you an idea of what type of fish will be there. I knew from some

college classes that the insects would be indicators of water quality so it was only natural to take the inquiry one step further."

"I'm in a unique situation because my principal has given me a van that's parked outside my door every morning...I have essentially 90 minutes that I can have these kids. I can throw lunch in there and we can take off together and be gone. I stick a note on my door, 'Gone to River'" and out of the 180 calendar days of last year's school year, Youst had his students out 167 days -- the equivalent of roughly one mile of River per day. Students were able to see how what started as a shallow, rather unimpressive trickle of water grows into a deep body of rushing water as a result of the many tributaries that feed into it along the way. As students traveled to other areas of the River, they saw first hand the changes in the volume and flow of the River, triggering new types of questions. One student asked and postulated an answer to her own question -- "Why does alkalinity keep going up so much? If there is more water, shouldn't it be lower?" She then hypothesized that perhaps it was due to the impact of agriculture which is so prevalent in that area.

Utilizing students as researchers -- conducting water tests, studying the sediments and measuring the pH -- has provided outside agencies with much needed information and, at the same time, engaged students as researchers and stewards of this natural resource. Real life work necessitates a quality of work that is different than that which results from more standard text-based instruction. Acknowledging the difference in the levels of engagement and the resulting quality of work, students from Yampa Valley expressed concern about the mediocrity that results from "busy work" and felt that as a consequence, "Nobody strives to get any better." As one student stated, "If students had something interesting so that they could see a point to what they were learning, I think there would be a lot more interest and a lot higher grades, a lot higher enthusiasm in the school."

The opinion of the community reflects a similar sentiment. Engaging students in work that is beneficial to the commonwealth addresses mutual issues. One citizen commented: "Small towns don't realize the resource they have in their schools because if you've got a problem to solve in your community that requires trigonometry, the chances are the only people who know how to do it are in the twelfth grade of the local high school...If you think of that school as a resource, you have a fresh group of people every year learning trigonometry....You can call them up on the phone...'Do you want to send somebody down?' and they would know what's going on."

Hayden High School teacher, Charlie Leech, agreed. "It seems so much more sensible than simulated problems when there's plenty of real ones." When students are engaged at this level of real life research/problems, they respond by generating questions of their own. It could be argued that a deeper level of inquiry results when Yampa Valley students are dipping their buckets into the River, taking samples, monitoring the flow of water, and awaiting the test results from their own samples.

Advanced photography and scientific skills are required as students find, quantify, identify, position and focus insects under microscopes. They record each specimen with photographs taken by a camera attached directly to the microscope. Speaking to the complexity of, commitment to, and quality of the student work he has seen as a result of his students' enthusiasm, Yoast stated, "For eighth graders, I couldn't believe the job they did. They made the graphs. They imported the pictures into it. They made sure that it made sense. They drew conclusions. For eighth grade science, I have never seen a group of students do something like that. They put together a fifteen or twenty page report with graphs and conclusions and pictures and a whole bunch of data.[5] [Students] did this because they see a purpose for it. It is not the lab-in-a-box type of thing. They are going out doing stuff that they know is being used by the Environmental Protection Agency, the Department of Health, and the U.S. Fish and Wildlife Service and they take pride in it."

Yoast and colleague Leech have a goal of floating the lower end of the Yampa River -- an area so remote, that there are no roads into it. There the River runs alongside slick rock canyons. The teachers are working in collaboration with the Park Service to organize a rafting trip with students to this area. There the students will help clean up campgrounds and conduct a more in-depth study of the Lower River.

In reference to what was considered the most rewarding part of the work for him, Yoast responded, "Watching the kids doing real science instead of having to sit there, having me talk about it and then answer questions on a worksheet. You know, they're [now] out doing tests that I never did until I was in college. [And even so] the stuff they're working with we never even thought about doing in college because it was the stuff that the professor got to touch and we didn't handle [the equipment] because we might break it. But [these kids] are carrying equipment around and learning how to use everything from laying a range finder to TPF to digital cameras."

Ultimately the Yampa River insect data will be available on a CD,[6] allowing people access to pictures, drawings, and information about the ecosystem, compiled by all of the partner schools in the Yampa Valley. Elaborate artwork done by a student who started the project last year and has since moved on to high school will adorn various sections of the CD.

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[5] The finished report of one group of students follows this narrative.

[6] The impetus for the CD project grew out of students' realization that there were insufficient computer programs available with this sort of information.

1997-1998

Yampa River Water Shed Report

Produced by the

Craig Middle School River Watch Class

Neil Binder, Caleb Kinkaid, Colton Grinolds
Ashleigh Gregg and Laura Duran

Sponsored by the Colorado Division of Wildlife and a Grant from the
Yampa Valley Legacy Education Initiative

Teacher

Mr. Norm Yoast

What is River Watch? It is program that the CDOW has put in to place allowing schools state wide to collect data that has a meaning in the real world. We collect data that is used to set stream standards, used in water court, used by the EPA and the Colorado Department of Health. The Division also uses it to judge stream health. What is YVLEI? It is grant sponsored by the Annenberg Rural Challenge that helps the students of the Yampa Valley understand the area they live in. The YVLEI allowed the River Watch Schools in the Yampa Valley to get together for a day long journey down the upper Yampa River. On this journey we first got to know each other a little, even though we didn't mix with the other schools that much, we did get to know them some. Next we began to collect data at each of the stations along the Yampa River that the schools from South Routt, HS and MS, Steamboat Springs, HS and MS, Hayden HS and Craig MS have.

PHOTO--THIS IS THE WHOLE GROUP AT THE UPPER RIVER

These tests are:

1. Temperature -- This is a measure of the heat energy of the river, it has a direct effect on what lives in the water because it influences the amount of oxygen there is in a dissolved state as well affecting the aquatic organisms metabolisms
2. Dissolved Oxygen-- This is the amount of oxygen in solution in the water, in a dissolved form. It is relative to the amount in the air and the temperature of the water. This influences what can live in the river. We use a standard Winkler titration and/or a Hach Dissolved Oxygen kit.

PHOTO--DOING A DO TEST

3. Alkalinity-- This is the balance of carbon dioxide in the river. It is a measure of the buffering capacity of the river. This allows it to withstand changes in pH. To test this we use a standard acid/base titration with 0.02N sulfuric acid.

4. Hardness--This is magnesium and calcium ions. These are the most common ions in fresh water. Hard water is more product than soft. We test hardness because it helps metal toxicity by out competing on the gill uptake sites on fish. So the harder the water, the more metals that can be in the water. We test hardness with an EDTA acid/base titration.

5. pH--This affects what can live in the water by influencing how much oxygen the blood can hold. Trout need a range of 6 to 8 to not be stressed. 1 is the most acid, 14 is the most alkaline. We test this using a Beckman pH meter with an automatic temperature compensator.

6. Metals--This is a test we only collect the sample for. The CDOW runs the test at their lab in Fort Collins. Metals are around in most rivers in trace amounts. The metals we test for are Cadmium, this is a nonessential metal, it becomes toxic to trout at 1.4 parts per billion (ppb). Copper is essential for cellular metabolism and the transport of oxygen, as well by some enzymes. It will become toxic at 20 ppb. Iron is essential in small amounts, toxic at 1,000 ppb. Lead is not essential, toxic levels are thought to be in the 10 – 100 ppb range. Zinc is essential for cell growth and differentiation. DNA and enzymes also use it. Toxic at 50 ppb. We collect a 60 mL sample that is fixed by a Nitric Acid solution, it is then sent to the CDOW for analysis. Metals enter the river from old mines, Industry, agriculture and other non-point sources.

7. Total Dissolved Solids--TDS is measured with an Oaktron TDS meter, it has an ATC probe like the pH meter. TDS is a measure of the amount of dissolved solids in the water, mainly salts. It measures this with an electric current, much like a volt meter. The more salts the higher the reading.

8. Flow-- This is received from a USGS flow station on the internet. Flow or discharge affects all the readings, more water is less concentrated on the samples.

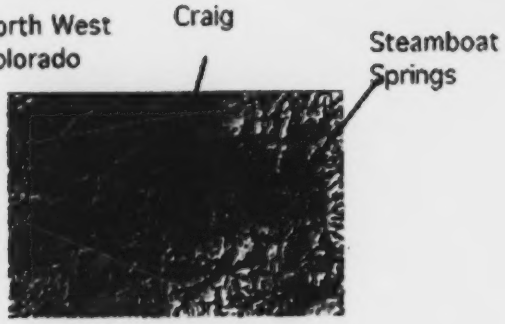
9. Bugs-- We test the macro invertebrates yearly. These are the critters that live in the rocks that fish feed on and also give you an idea of stream health by what type are there. We test these in the fall when the water level is low. We use a kick method to dislodge the insects from the rocks, they are then caught in a screen. We will then count and ID them to determine stream quality.

Sampling Schedule

We test the stations one time a month from Sept. to Feb. low flow. Then during runoff when things are happening we test one time a week. We have a total of 7 stations.

Stations

In the area shown there are 7 stations for CMS , 6 from South Routt, 1 from Hayden, 2 from Steamboat. They are on the Yampa (Bear) , Oak Creek, Williams Fork, Green and Little Snake Rivers.



Area is 75 miles by
100 miles

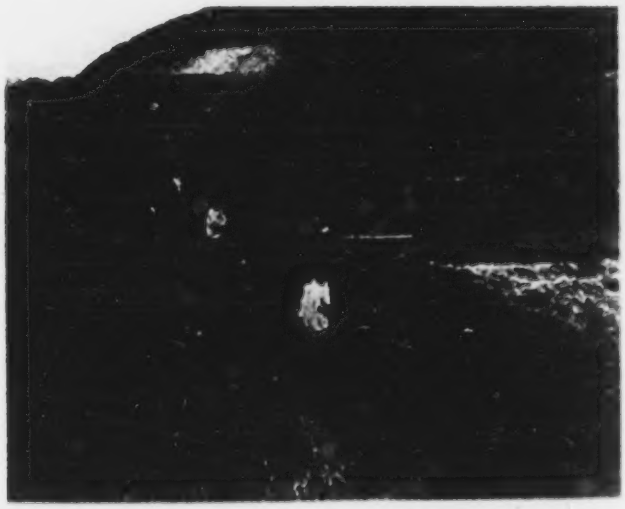
Data

Our data was collected over a period of 1 year, there were 6 schools involved in the collection. These schools all used the exact equipment and the same methods. All the data is in Appendix 1.

River Health

After a year of collecting, observing, and analyzing our and other schools data here are our conclusions.

The upper Yampa River is a very healthy river, the metals that we collected are essentially nonexistent, the alkalinity, hardness, and pH varies only small amounts in the 70 miles that we analyzed. The biggest variation is in the area above and below the reservoir at Stage Coach.



INLET TO STAGE COACH RESERVOIR

We believe that the lake acts as a settling pond that allows the CACO, settle out or bond with other metals, we never tested the lake but we feel as we approached the spill way that the hardness, alkalinity and pH would become less. We also observed that the TDS readings on our field trip was much less at the spill way, this is due to the fact that we believe the dissolved solids are more dense and move to the bottom of the lake and the less saturated water is on top. As how the water was coming over the spill way, that could account for the fact that the TDS is less. Two factors that really change down river are the river size, at Cattle Guard it is a mild 5 meters across, you could easily wade it. At the South Beach Station it was over 110 yards wide carrying 17,000 cubic feet per second past the gauge, at 7.5 gallons per cfs, that is 127,000 gallons in 1 second. The City of Craig uses 10 seconds of water a day in the river! The other factor that really changes along the river is the temperature, and thus the dissolved oxygen. This is easily solved, we believe. At the headwaters it is coming right off the snowfields, cold water. As it moves downstream heat energy builds up due to friction. Now as temperature rises the molecules become more excited and oxygen is more easily released to the atmosphere. It will bring in new oxygen at riffles and rapids but as the river gets bigger, those are much less until you get to the lower Yampa River, Cross Mountain and Yampa Canyons.

PHOTO --Lindsey Kunkle taking a dissolved oxygen sample.

One thing we also observed was how the fish change, the Upper Yampa River is mainly trout with some northern pike. The Lower is mainly catfish, bass and pike. Pike are very hardy and can live most anywhere but the trout are very intolerant to change. So as the river becomes wider, warmer and slower the trout populations drop off and the pike, catfish and bass pike up. We got this data in a fairly scientific matter. We put surveys at sports shops along the valley and fishermen sent them to use with the number, type and location of fish. We did not electro fish.

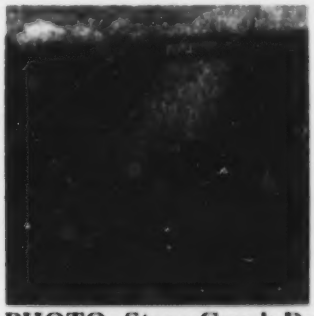
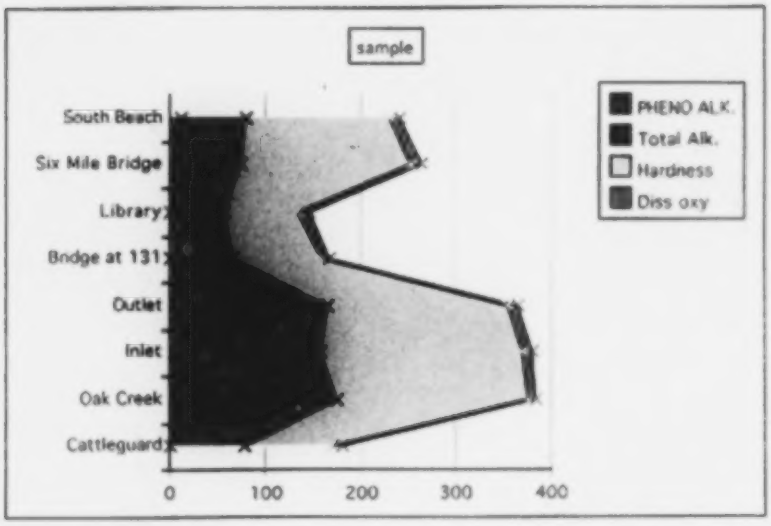


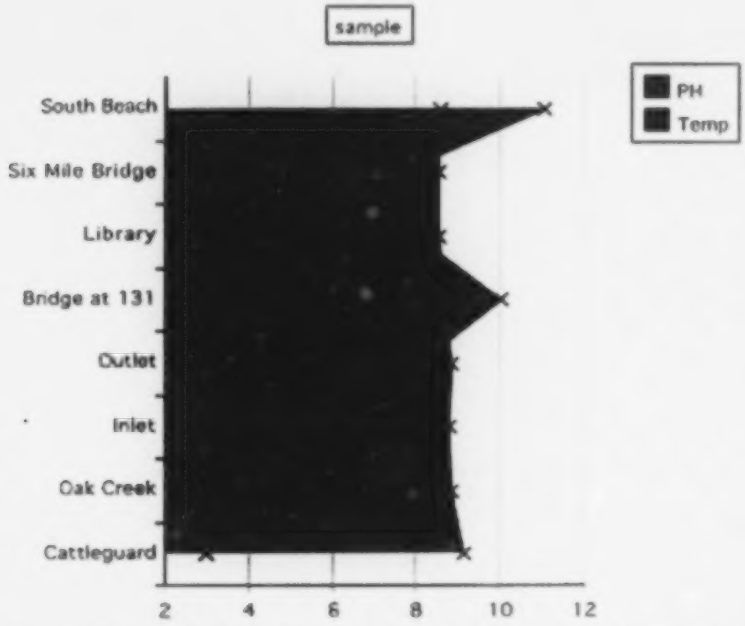
PHOTO- Stage Coach Dam, Our Giant "FILTER" on the river

End of Field Trip Station

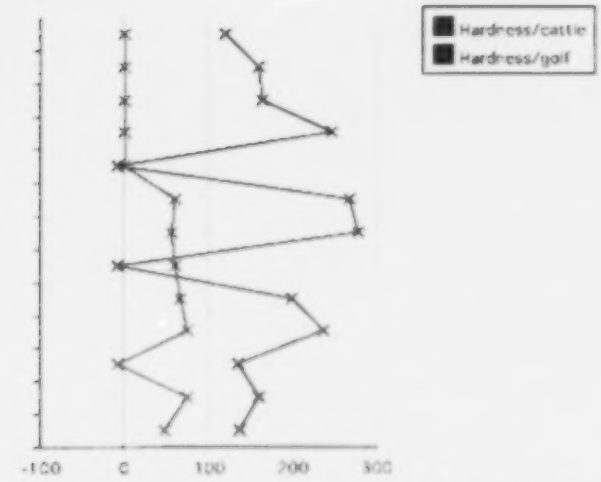
Headwaters of the Yampa, at this point its proper name is the Bear River



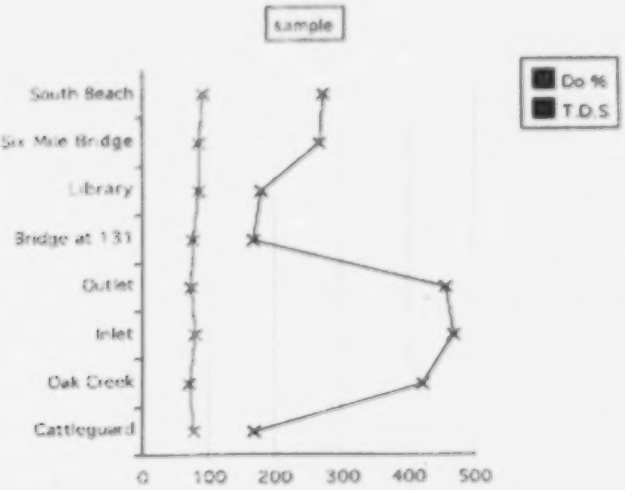
This graph shows a comparison of some of the factors tested. The big drop in variables is below the reservoir at Stage Coach. We believe that acts as a filter.



Graph 2 shows how temperature and pH varies down river, the drop at 131 is due to new tributaries coming in. pH is fairly constant.



Graph 3 shows a years worth of hardness from the upper river and the lower. Notice the Cattle Guard on the upper river is not very hard at all, but as the river gets bigger, erodes more and new rivers come in the hardness really increases over the year.



Our last graph shows how TDS and Dissolved oxygen vary on the river. The dam really acts as a filter here. Now even through the DO graph shows a fairly small difference in the amount of values, remember this is percent saturation.

Sources cited:

Rivers of Colorado Water Watch Network Workbook

Appendix 1
1 31 BRIDGE Steamboat MS

sample	flow	pH	Temp	PHENO ALK.	Total Alk.	Hardness	Diss oxy
1	-9	8.8	-9	-9	29	70	12
2	-9	8.5	-9	-9	60	73	13
3	-9	7	-9	-9	20	36	11
4	-9	8.2	-9	-9	25	60	9
5	-9	7.5	-9	-9	29	33	10
6	-9	7	-9	-9	22	32	10
7	-9	7	-9	-9	14	54	10
8	-9	7	-9	-9	51	64	7
9	-9	8.2	-9	-9	33	87	8
10	-9	8.5	-9	-9	55	92	9
11	-9	8.6	-9	-9	75	116	9
12	-9	8.7	-9	-9	103	128	9
13	-9	8.7	-9	-9	103	128	9
14	-9	8.2	-9	-9	108	118	9
15	-9	8.2	-9	-9	100	115	13
16	-9	10.2	-9	-9	80	122	11
17	-9	8.5	-9	-9	102	129	8
18	-9	8.1	-9	-9	30	121	12
19	-9	10	-9	-9	58	120	11
20	-9	8.1	-9	-9	58	138	11
21	-9	8.1	-9	-9	28	110	11
22	-9	8.7	-9	-9	83	101	13
23	-9	10.1	-9	-9	19	95	12

CATTLE GUARD South Routt HS

sample	flow	pH	Temp	PHENO ALK.	Total Alk.	Hardness	Diss oxy	Do %	T.D.S	Date of Sample
6.119	-9	8.1	1	0	64	48	-9	-9	-9	1/31/1997
6.12	-9	8.35	2	0	68	74	11	75	-9	3/20/1997
6.121	-9	8.23	2	-9	-9	-9	11	80	-9	4/30/1997
6.122	-9	8.03	3	0	70	74	11	82	-9	5/14/1997
6.123	-9	8.09	4	0	54	66	9	68	-9	5/21/1 997
6.124	-9	8.15	7	0	52	60	10	82	-9	9/30/1997
6.125	-9	8.08	0	0	58	56	10	69	-9	2/11/1998
6.126	-9	8.44	2	4	58	60	9.8	71	-9	3/29/1998

FIELD TRIP Craig MS data

sample	flow	pH	Temp	Pheno Alk.	Total Alk.	Hardness	Diss ox	Do %	T.D.S
Cattle guard	-9	9.1	3	0	78	92	10.4	75	168
Oak Creek	-9	8.78	6	24	150	200	9.4	70	420
Inlet 260	8.76	7	7	154	212	10	80	468	-----
Outlet 280	8.78	8	12	152	190	8.9	73	456	-----
Bridge at 131	-9	8.63	10	0	66	92	8.5	75	167
Library 1950	8.49	8	8	56	78	10	84	178	-----
Six Mile Bridge	-9	8.49	7.5	8	66	178	10.8	86	265
South Beach 7100	---	8.53	11	12	68	150	10.2	90	272

FORT NORTH Craig MS

sample	pH	Temp.	Pheno Alk.	Total Alk.	Hardness	Hach DO	Winkler Do	DO%	Date of sample
0.001	8.48	8	12	192	242	10	10.4	92	10/28
0.002	8.31	1	64	222	270	-9	11.2	75	11/18
0.003	7.71	0	0	148	280	-9	*10.2*	68	12/16
0.004	8.13	1	0	220	408	-9	10.1	71	2/11
0.005	8.72	1	84	200	378	8	-9	55	3/5
0.006	8.08	3	0	114	200	9	-9	70	3/19
0.007	8.07	0	0	146	210	10	-9	-9	4/8

41

42

0.008	8.5	7	0	100	180	-9	10.1	70	4/13	
0.009	-9	10	0	84	164	-9	14	-9	4/22	
0.010	8.6	10	0	50	94	-9	10.1	90	4/27	
0.011	11	0	0	44	82	-9	13.9	110	5/6	

GOLF COURSE Craig MS

sample	flow	pH	Temp	PHENO ALK.	Total Alk.	Hardness	Hach Do	Winkler DO	Do %	Date of Sample
0.047	7140	8.02	2	0	62	136	9	-9	70	9/22/1 997
0.048	1069	8.52	9	14	37	160	11	-9	95	10/15/1997
0.049	595	8.44	4	8	86	134	10	9.9	76	11/7/1997
0.05	450	8.45	-9	16	12	236	-9	-9	-9	1 2/9/1997

FORT SOUTH Craig MS

Date	sample	metals	flow	pH	temp	phen alk	tot alk	hardness	hach	winkler
Sept. 29, 97	0.001	-9	-9	8.27	1.3	1.4	194	260	13	-9
Oct.30, 97	0.002	-9	-9	8.63	8	3.2	203.2	175	10	1.2
Nov. 19, 97	0.003	-9	-9	8.39	2	35	21.2	242	-9	21.2
Dec. 19, 97	0.004	-9	-9	-9	4	0	220	318	13	-9
Jan. 21, 98	0.005	-9	-9	7.94	1	0	208	320	-9	1.2
Jan. 28, 98	0.006	-9	-9	7.76	4	0	230	366	13	-9
Mar. 4, 98	0.007	-9	-9	8.13	1	0	21.2	296	-9	1.4
Mar. 17, 98	0.008	-9	-9	8.66	8.8	0	108	180	-9	10.4
Apr. 1, 98	0.009	-9	-9	8.04	6	0	164	288	12	-9
Apr. 7, 98	0.01	-9	-9	-9	-9	-9	-9	-9	-9	-9
Apr. 14, 9 8	0.011	-9	-9	8.21	8	0	114	200	-9	9.8
Apr. 27, 98	0.012	-9	-9	8.36	1.7	0	92	124	-9	-9
May 4, 98	0.013	-9	-9	-9	12.1	-9	-9	-9	-9	-9

SOUTH BEACH Craig MS

Date	sample	Metals	flow	pH	temp	phenol alk	total alk	hardness	hach	winkler
Sep. 17, 97	0.026	-9	429	-9	5	18	124	253	9.5	-9
Oct. 8, 98	0.027	-9	60	8.5	3	4	90	148	9	-9
Nov. 7, 98	0.028	-9	595	8.97	4	24	96	156	10	13.4
	0.029	-9	-9	-9						
Jan. 7, 98	0.03	-9	987	8.06	1	0	116	188	-9	11.2
Feb. 5, 98	0.031	-9	-9	7.98		0	136	*220*	12.6	-9
Feb. 6, 98	0.032	-9	-9	-9	-9	-9	-9	-9	-9	-9
mar. 11, 98	0.033	-9	758	8.48	1					11.5
mar. 18, 98	0.034	-9	-9	-9						
Apr. 7, 98	0.035	-9	2480	8.21	6	0	122	210	-9	12.1
Apr. 16, 98	0.036	-9	-9	8.27	8	0	118	228	-9	-9
Apr. 24, 98	0.037	-9	-9	8.48	10.6	0	118	172	-9	-9
Apr. 29, 98	0.038	-9	-9	8.12	15.1	0	88	136	-9	9.3
may 6, 98	0.039	-9	7440	8.18	15	0	72	168	9	-9

STAGE COACH INLET South Routt HS

Sample	Flow	pH	Temp.	pH. Alk.	Total Alk.	Hardness	Diss. Oxygen	Hach	Winkler	Date
0.051	---	7.94	1	0	120	198	10	-9	-9	1/14/1998
0.052	-9	-9	-9	-9	-9	-9	-9	-9	-9	
0.053	-9	8.21	1	8	138	278	12	-9	90	3/4/1998
0.054	-9	8.36	1	12	138	266	12	-9	75	3/10/1998
0.055	-9	8.38	6	0	124	-9	-9	1.0	80	4/10/1998
0.056	-9	8.1	7	0	116	246	9	-9	9	4/15/1998
0.057	-9	8.37	11	0	108	164	-9	10.3	90	4/24/1998
0.058	-9	8.23	13	0	100	160	-9	10.6	100	4/29/1998
0.059	-9	8.24	-9	0	66	120	-9	9.5	88	5/6/1998

45

46

WILLOW CABIN BRIDGE South Routt HS

sample flow	pH	Temp	PHENO	ALK.	Total Alk.	Hardness	Diss oxy	Do %	T.D.S	Date of Sample
7.119	-9	7.93	0	0	138	156	-9	-9	-9	1/31/1997
7.12	-9	8.5	3	6	150	186	11	80	-9	3/20/1997
7.121	-9	8.33	3	8	136	168	11	82	-9	4/30/1997
7.122	-9	8.28	6	0	100	116	10	80	-9	5/14/1997
7.123	-9	8.29	9	6	132	160	7	62	-9	5/21/1997
7.124	-9	8.53	8	4	116	122	9	75	-9	9/30/1997
7.125	-9	8.35	8	8	130	146	11	-9	-9	2/11/1998
7.126	-9	8.29	3	4	122	150	9.8	72	-9	3/28/1998

BELOW STAGE COACH South Routt HS

Sample	flow	pH	temp	BELOW DAM	phen alk	bgmr alk	tot alk	hardness	hach	winkler%
0.098	65.8	7.8	4	0	174	174	200	-9	-9	-9
0.099	64.5	7.97	3	0	170	170	204	7	-9	50
0.1	-9	7.96	4	0	162	162	224	9	-9	69
0.101	323	8.51	10	8	140	148	230	9	-9	80
0.102	211	8.53	11	220	156	178	194	8	-9	70
0.103	133	8.56	14	12	148	160	186	8	-9	77
0.104	-9	7.9	3	0	140	192	192	9	-9	67
0.105	101	7.96	4	0	-9	154	178	7.5	-9	56

Sample	flow	pH	temp	ABOVE DAM	phen alk	bgmr alk	tot alk	hardness	hach	winkler%
0.116	223	7.67	1	0	164	164	192	1.1	-9	77
0.117	97.7	8.11	1	8	11.6	124	236	1.2	-9	85
0.118	-9	8.39	4	8	1.52	160	240	1.1	-9	84
0.119	249	8.28	8	0	1.56	1.56	160	9	-9	75
0.12	1.88	8.21	10	6	154	160	192	8	-9	70
0.121	1.83	8.31	9	4	13.8	17.8	160	9	-9	78
0.122	-9	7.88	0	0	-9	1.50	182	1.1	-9	75
0.123	235	8.16	4	4	-9	148	202	9.2	-9	69

"TIDEPOOLING ADVENTURES"

NAME OF RURAL CHALLENGE SITE: *North Coast Rural Challenge Network*

SCHOOL: Mendocino Unified School District
ADDRESS: PO Box 1154
TOWN: Mendocino
STATE: California
ZIP: 95460
TELEPHONE: (707) 937-5868
FAX: (707) 937-0714
WEBSITE: http://www.ncrcn.org/me/Projects/prTideProp.html

CONTACT PEOPLE:

- Ken Matheson, Superintendent
- Deena Zarlin, ARC Coordinator for Mendocino (707) 937-4750
- Robert Jamgochian, Science Teacher, Mendocino High School

ACADEMIC CONTENT AREA: Advanced Topics in Biology

GRADE LEVEL(S): 10th – 12th

LENGTH OF TIME: one semester, plus the following academic year

DESCRIPTION [7]

At the beginning of the year, the advanced biology class at Mendocino High School, taught by Robert Jamgochian, recognized that we had a unique opportunity to work on a specialized project. We noticed that the community did not have an informative and specialized brochure that could serve as a guide to our unique marine environment. The first step was to find out what was already available to the public. We went to local bookstores and found out that there wasn't anything between a full-length book and a two page black and white brochure. We knew immediately that our brochure was greatly needed; this was reinforced by a survey of people on the street and a local bookstore buying 100 copies up front.

Following the basic concept planning, we started in on the actual content. The class divided into five groups. Each group would focus on a different zone: Low Tide, Mid Tide, High Tide, Splash and Spray, and Birds. In addition to at least four organisms for each group, we planned a section for preservation and maps. We wanted to place special emphasis on the preservation aspect throughout the

[7] Ben Corey-Moran, a student at Mendocino High School, provided the description of this project.

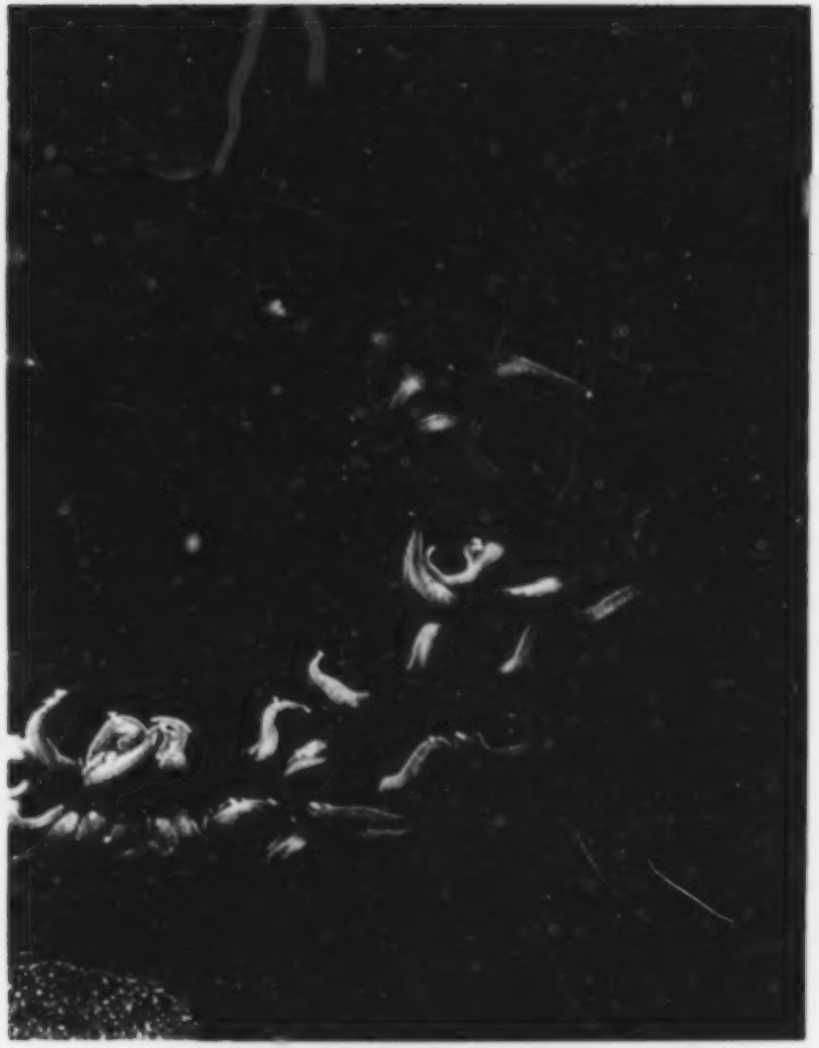
brochure. Human impact has already had an adverse effect on the tidepools and by educating the public, we thought we could make a difference.

In November, the class took a two-day field trip to the Monterey Bay Aquarium. This was an eye-opening experience that would not have been possible without the help and support of Jeff Stanford. At the aquarium we got a behind-the-scenes tour, and access to the aquariums' tanks where we were able to photograph some of the more rare organisms. Photography was the most challenging aspect because many of the organisms are very rare and hard to photograph without the help of special lenses and filters which the grant funding bought.

With generous help from a local graphic artist, Lila Sternglass, we put the brochure together using the professional graphics design program Quark Express. In addition to the brochure, we created a website that can be accessed through http://www.ncrcn.org/me/Projects/prTideProp.html/.

Looking back at what we have accomplished is very satisfying. The project was very time consuming, but we were aiming at perfection and we knew it would require hard work and time. The class is proud of the brochure, and proud of ourselves for setting a goal and working to achieve it. We learned that 15 students with help and supervision can produce something that is professional. Cooperative learning is difficult because it adds another dimension to the task, but cooperative learning is real and extremely satisfying. The profits from the brochure will be earmarked to sustain future NCRCN biology projects.[8]

[8] The brochure, in black and white, follows. In color, it is a remarkable display.



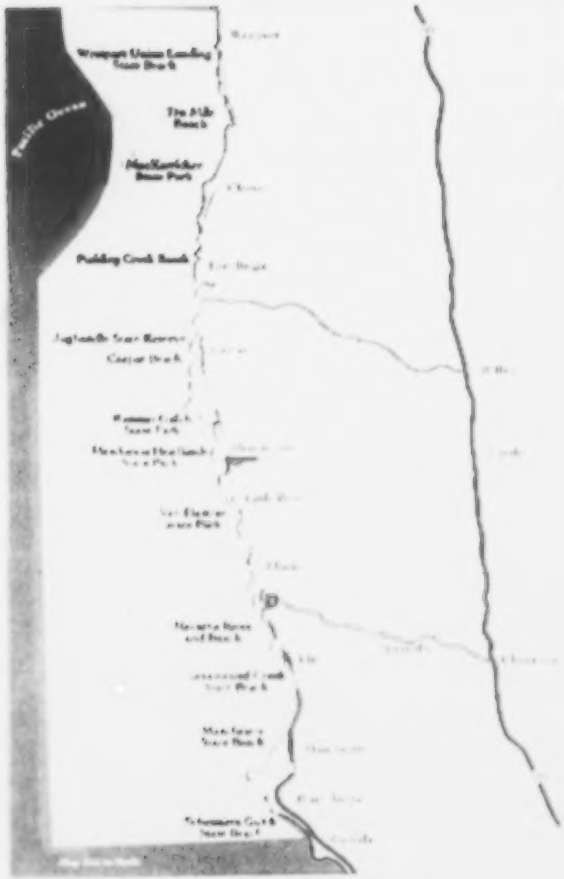
51

Tidepooling Adventures
Along The Mendocino Coast

Think Preservation

"The best evidence that you have been there is no evidence at all."

52



Tidal Pool Sites

Intertidal Zonation

Throughout the intertidal area, a very fascinating phenomenon known as zonation occurs. Zonation is a vertical banding of the organisms living on the rocky coastline. These distinct bands occur in part from many complex physical and biological factors that effect marine organisms. Competition between species for food and space, predation, and harsh environmental factors such as thrashing waves, and temperature stress from exposure all contribute to the formation of this phenomena.

You may find that organisms are dynamic and do not always stay within their zones. For example, abalone, which are common in the low tide zone, may wander to live in the high tide zone.

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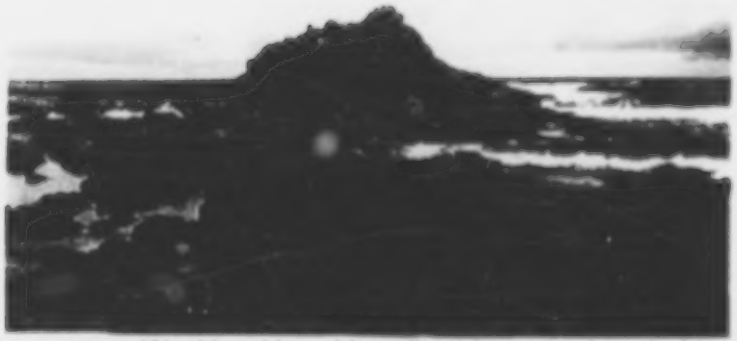
Introduction



Immerse yourself in this guide to tidepooling adventures along the Mendocino Coast. Tidepools, which are exposed at low tide, occur within a small strip of land known as the intertidal zone. Sandwiched between the shore and the ocean, tidepools are extraordinary, teaming with hundreds of marine organisms.

Photographs of easy to find organisms have been placed into the following areas:

Splash & Spray *Zone*

High Tide *Zone*

Mid Tide *Zone*

Low Tide *Zone*

Intertidal Birds

The sun and the moon move in cycles affecting the flow and ebb of the tides. Here in the Pacific, we have two high and low tides of unequal heights each day. Between each high and low tide there is a time difference of approximately six hours. Refer to the tide charts in our local newspaper, to determine the best time to view organisms. Tides below one foot in height are ideal for viewing organisms in our majestical tidepools.

Please visit the intertidal area with care. You are walking into the habitat of many organisms. Tread lightly and take only photos so that others who follow can appreciate the wonders of the intertidal life.

Splash and Spray

Lined Shore Crab

Pachygrapsus crassipes

One of the most active organisms found in the splash and spray zone is the Purple Shore Crab. To grow, crabs must periodically shed their shell (molt). You may find these intact deserted shells along the beach. To escape enemies, crabs can shed their legs or claws. Lost parts can be regenerated after a few molts. Most crabs are scavengers that feed on bits of seaweed and other small organisms. Some of the predators that eat crabs are fish, birds, and octopi.

Habitat/Range: Purple Shore Crabs live in crevices and under rocks along the shore from Oregon to Baja California.

Black Turban Snail

Tegula fimebrulis

Feeding on algae and seaweed, the Black Turban Snail may live to be 25 years old. The snail's ability to stick to objects comes from thin, elongated depressions on the foot which act like suckers. The eyes of a Black Turban snail are on tentacles that can be withdrawn in case of a threatening situation. If a turban snail shell is seen rapidly moving across a tidepool bottom, it usually contains a hermit crab.

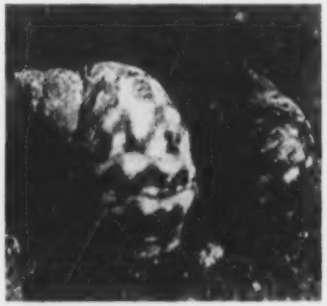
Habitat/Range: Black Turban snails are very common in the tidepools in British Columbia to Baja California.

Acorn Barnacle
Balanus glandula

Related to crabs and lobsters, Acorn Barnacles are white and volcano shaped. Instead of crawling after food, barnacles glue themselves to abalone, rocks and ships to wait for food. When they are underwater, Acorn Barnacles use their feathery barbed legs to absorb oxygen and strain plankton. Capable of surviving harsh conditions, barnacles avoid competition for space with numerous other organisms that are less tolerant to exposure. They usually live in crowded colonies clumped tightly together. The inner hinged plates tightly seal off the barnacle when they are exposed at low tide. Most barnacles are hermaphrodites and have sexual organs that are twice as long as their body.

Habitat/Range: Acorn Barnacles live on exposed rocky shoreline areas from the Aleutian Islands to Baja California.

Periwinkle
Littorina planaxis



Periwinkles are one organism in the intertidal zone that is able to survive long-term air exposure. In fact, periwinkles cannot withstand prolonged emersion in seawater. They protect themselves by clamping down tightly against the rock, sealing their shell with a glue-like mucus. They are mostly active at night when the humidity is high. As periwinkles glide along rocks, they "lick" the surface to scrape off microscopic organisms. The main predators of these snails are shorebirds.

Habitat/Range: Periwinkles can be found on pilings, docks, bays and in rock areas from Alaska to Baja California.

High Tide Zone

Limpets
Collisella digitalis

Limpets are small mollusks with flat or conical one-piece shells. The color, size, shape and markings between limpets vary. Limpets scrape algae off rocks with their specially adapted tongue known as a radula. Each limpet forms a scar on the rock into which its shell fits perfectly. This process allows these organisms to seal tightly during low tide. Limpets may use the same resting spot for their entire life (about ten to fifteen years), only moving a few feet when feeding.

Habitat/Range: Limpets are found along cracks or depressions in-between large rocks where they are protected from the full force of the waves. They can be found from Oregon to Baja.

Ochre Sea Star
Pisaster ochraceus

The Ochre Sea Star is one of the most beautiful organisms in the intertidal zone. They can be orange, yellow, or purple in color. Tiny suction cups called tube feet cover the underside of their five arms. Tube feet enable them to move or pry apart mussels, their favorite food. Located in the center of the underside of the body is a mouth from which they can extend their stomach to externally digest food. Ochre Stars can regenerate their body parts, however, it takes up to a year or more to fully redevelop.

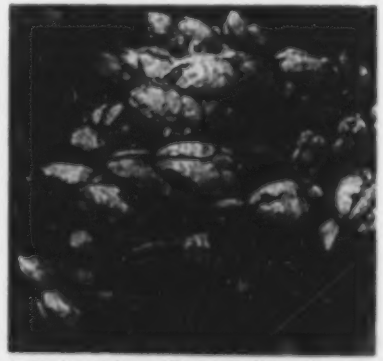
Habitat/Range: Ochre Stars attach to rock and mussel beds from Alaska to Baja California.

California Mussel
Mytilus californianus

Mussels are found in large colonies on exposed rocky outcrops along the coastline. Filtering out plankton from the crashing waves and currents, mussels struggle to survive. Their formation into dense clusters helps them retain moisture as well as lessen wave shock. Mussels are important in providing shelter for a variety of smaller organisms such as crabs, worms, and barnacles. The main predator of mussels is the Ochre Sea Star. Often considered a delicacy, mussels should not be eaten between the dates of May 1 and October 31. During this time mussels may find and accumulate an extremely toxic plankton. Consuming mussels during this period can cause paralysis and death in humans.

Habitat/Range: Mussels are abundant along surf exposed coastlines and wharf pilings from Alaska to Baja California.

Gooseneck Barnacles
Pollicipes polymerus

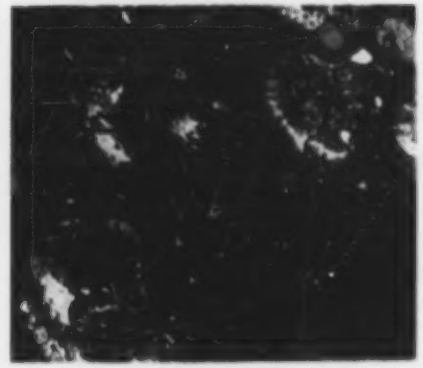


Found in large colonies on rocks, the Gooseneck Barnacle is made up of a white and brown shell resting on a black fleshy stalk. This stock holds it above the substrate, which allows these organisms to twist their "faces" into the flow of water for more efficient filter feeding. At high tide, their feeding legs resemble feathers that make sweeping motions when collecting planktonic food.

Habitat/Range: Gooseneck Barnacles are found on rocky Pacific seashores from British Columbia to Baja California.

Midtide Zone

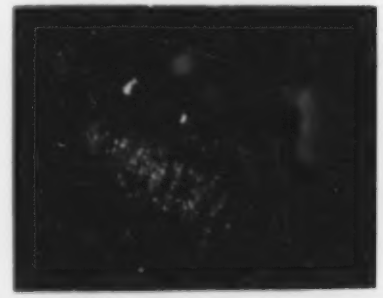
Aggregating Anemone
Anthopleura elegantissima



Often covering large expanses of rock, anemones are very soft and squashy organisms. Anemones usually cover themselves with bits of gravel and shell to blend in with the rock and reduce water loss at low tide. When stepped on or touched, they will squirt water while pulling in their tentacles. Aggregating Anemones can be green or white with tinges of pink. They have tentacles armed with tiny stinging barbs called nematocysts. Using these tentacles, they paralyze small organisms that cross their path. Luckily, our local species is not harmful to humans.

Habitat/Range: Aggregating Anemones are generally found in large groups attached to rocks. Anemones can be found in Baja northward to Alaska.

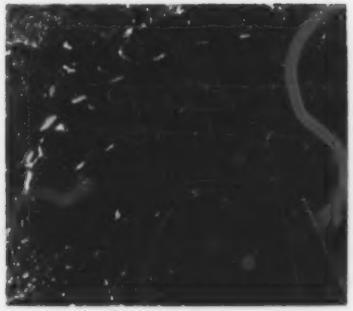
Gumboot Chiton
Cryptochiton stelleri



The Gumboot Chiton is the largest of all chitons. The body is covered by a thick, leathery, brick-red flesh. The Gumboot Chiton may roll into a ball for protection. Unlike most chitons, this type does not cling tightly to rocks. Chiton feed on algae and seaweed.

Habitat/Range: Gumboot Chitons are found attached to and under rocks, near seaweed and algae, from Alaska to the Channel Islands of Southern California.

Lined Chiton
Tomicella lineata



The beautiful pin white, and sometimes blue zig-zag patterns of this handsome organism makes it unique from other Pacific chitons. Chitons remain stationary when they are exposed at low tide and move about only when they are covered with water. The pattern of the colorful markings on their eight plates creates an effective camouflage protecting this organism from predators.

Habitat/Range: Lined Chitons are commonly found on coralline algae covered rock surfaces. They are found from the Aleutian Islands in Alaska to the Channel islands in Southern California.

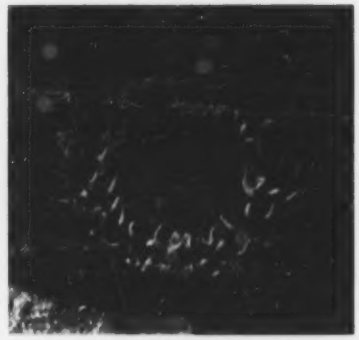
Sculpin
Oligottus maculosus

Common inhabitants of tidepools, but often hard to see, sculpins are a speckled reddish brown. Masters of camouflage, they can change color within minutes. This coloring helps them escape from predators. Some species of sculpin have large eyes that swivel independently. The dorsal and pectoral fins are spiny and stout helping the organism hold onto the rocky bottom. They feed on small invertebrates and fish. Our local sculpins are typically 3-6 inches in length.

Habitat/Range: Sculpin are generally found in tidepools along the Pacific coast from Alaska to Baja.

Low Tide Zone

Giant Green Sea Anemone
Anthopleura xanthogrammica



Giant Green Sea Anemones are easily recognized by their size and magnificent green color. This organism is our largest anemone and can grow to a diameter of 10 inches. Anemones use their long tentacles to catch passing prey. Anemones sting and paralyze their victims. If you are brave enough to stick your finger into this mass of green worms you might feel a tingling sensation. Miniature harpons on the tentacles, called nematocysts, are being discharged into your finger. Do not worry though, the poison is usually harmless to humans. Green Sea Anemones are capable of devouring a giant crab, and spitting out the shell in only 15 minutes. In comparison, this would be the same as a full grown human digesting a big chicken in the same amount of time!

Habitat/Range: Anemones usually cling to the sides and under surfaces of rocks. They can be found along the Pacific coast from Alaska to Baja.

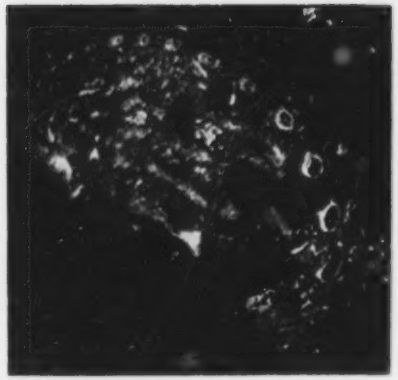
Sponges
Haliclona spp.

In hues of purple, red, or yellow, sponges are some of the most brightly colored organisms in the intertidal zone. Sponges are sheets of smooth, but not slimy, mats covered with raised tubes. These tubes look like small volcanoes and help filter food out of the water.

Habitat/Range: Sponges are found in clumps across rocks and other hard surfaces, usually in shaded and protected areas. Sponges range from Washington to Central California.

Red Abalone

Haliotis rufescens



Once abundant along our coast in great numbers, these exquisite sea creatures can no longer be easily found due to over-harvesting. Related to snails, abalone are especially known for their tasty flesh which is considered a delicacy. Be cautious when trying to pry them from the rocks; abalone are hemophiliacs. The abalone limit is four per diver, and the size minimum is eight riches. A license, special pry bar, and measurement calipers must be in hand.

Habitat/Range: Sensitive to light, abalone hide under rocks in the surf zone and out to a depth of 60 feet. Red Abalone can be found in areas that have a rocky shoreline from Baja California to Sunset Bay Oregon.

Bat Star

Asterina miniata

Brilliant with color variations ranging from yellow and orange, to black, the webbed arms of the Bat Star make it easy to distinguish. This medium sized species with rough texture, is one of the most abundant sea stars in the tidepools. Bat Stars love to dine on Turban snails, which are their favorite food.

Habitat/Range: The Bat Star lives on rocks, in surfgrass, kelp, and on sandy bottoms. It can be found from Alaska south to Baja.

Low Tide Zone

Purple Sea Urchin

Strongylocentrotus purpuratus

A cousin to the sea star, the Purple Sea Urchin has short spines which range from 1-2 inches. Often broken by predators or careless visitors, their spines may regrow when broken because they are made up of living tissue. The underside of the urchin shows the five converging teeth which create a structure called "Aristotle's Lantern." These teeth are very adept at devouring kelp. Intertidal areas are often scoured, devoid of seaweed vegetation by large populations of urchins. Urchins are harvested for their roe (eggs), a delicacy called Uni in Japan. Urchins often protect themselves by eroding cavities in rocks and pilings, even ones of steel.

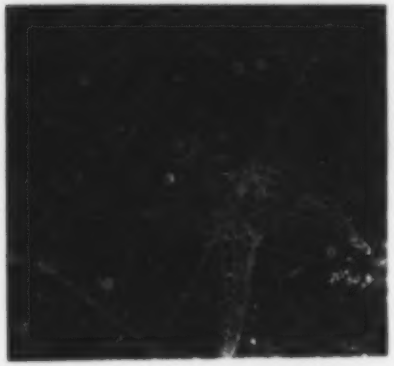
Habitat/Range: Purple Sea Urchins can be found in turbulent surf areas from Vancouver Island, Canada to Baja, California.

White Dendronotus

Dendronotus albus

Sea slugs are a fine example of the interesting creatures that you might find in the intertidal zone. White Dendronots are opaque with a white line down the back and top of their tail. The delicate branch-like cerata are normally tipped with orange or yellow, giving them a very unique appearance.

Habitat/Range: White Dendronots are commonly found on kelp or in rocky pools. They can be found from the Vancouver Islands to Baja, California.



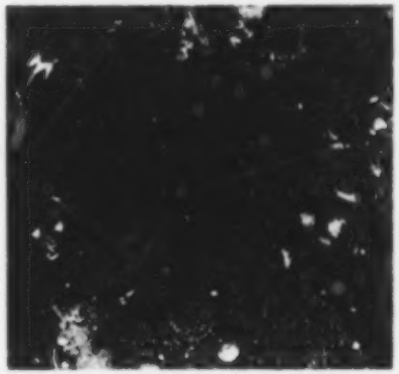
Leather Star
Dermasterias imbricata

The Leather Star is truly a unique organism possessing gray and orange, slimy, soft rays, that often have a garlic odor. They feed on Purple Sea Urchin, Sea Anemones, and Sponges.

Sometimes, when a Leather Star makes contact with a Sea Anemone, the Sea Anemone will break off the rock that it is attached to and creep away. This is in response to a chemical that the Leather Star produces.

Habitat/Range: Leather Stars prefer living in low tide zones, from Northern California to Baja.

Sunflower Star
Pycnopodia helianhoides



The Sunflower Star is the largest, heaviest, and most active of the Pacific coast sea stars. They are very soft and flexible creatures, which can bear up to 24 arms in adults with an arm radius of over 15 inches. They are usually a purple-pink color, but can also be found in red, orange, or yellow. Sea urchins and mussels are the preferred food of the Sunflower Star. A large sunflower star can bring over 1500 sucker feet into action, moving at remarkable speeds, to capture struggling fish or crabs.

Habitat/Range: Sunflower Stars can be found in the low and subtidal zones from Alaska to San Diego.

65

Intertidal Birds

Cormorant
Phalacrocorax spp.

Often seen perched on rocks or diving for fish along our coastline, this bird is distinguished by dark brown and black feathers. Juvenile birds may have a white belly. Since these bird dive for fish they spend a lot of time drying their feathers. Cormorants are often seen sitting on rocks with their wings spread in the sun. The feathers of the Black Cormorant were often worn in adornment by the coastal Native American.

Habitat/Range: This bird is seen on coastal rocks from Canada south to Mexico.

Seagull
Larus spp.

A common sight along our coast, the seagull has the important role of scavenging and cleaning the intertidal areas. Seagulls are opportunistic and will eat almost any intertidal organism. However, they prefer to eat fish, mollusks, and crustaceans. Our two local gulls can be distinguished by their feet; the Herring Gull has orange feet while the California Gull has yellow feet.

Habitat/Range: The Seagull is abundant along the coast and along rivers. During the breeding season they migrate inland into the Great Basin, specifically Mono Lake. They are found along the Pacific Coast from Alaska to Mexico.

66

American Black Oystercatcher
Haematopus bachmani

The Oystercatcher is midnight black with a red bill and pink legs. They are often seen feeding on mollusks, marine worms and crustaceans. Their unusually short and thick toes enable them to run swiftly on the slippery rock. Oystercatchers have specialized beaks which are long and narrow, ideal for capturing prey. They learn to hammer or split shells open from their parents. This behavior is passed down from generation to generation.

Habitat/Range: This bird is common along the coastline of the Pacific Ocean from Alaska to Mexico.

Brown Pelican
Pelecanus occidentalis

Gliding in groups along the crest of waves, the Brown Pelican is a very large bird. The wingspan of the Brown Pelican is over 6 feet and their body is over 4 feet long. Once endangered due to the effects of the pesticide, DDT, they have now recovered to a population of 100,000 birds in California. Perhaps the most unique feature of this bird is a long bill. Below the bill on the bird's neck is a large pouch, which is used to store fish immediately after catching them.

Habitat/Range: The Brown Pelican feeds in the shallow coastal waters. These birds may venture inland into estuaries and out to sea for better feeding. They can be found along the coast of California to Mexico.

Think Preservation

"The best evidence that you have been there is no evidence at all."

Intertidal creatures can protect themselves from harsh natural environmental conditions. However, human carelessness is often the cause of irreversible damages to organisms.

The intertidal zone is made up of a unique network of environmental systems which take many years to fully develop. When you enter the tidal zone, walk carefully because you can offset the delicate balance which may take many years to renew, in addition to causing the death of many intertidal creatures.

Leave rocks in place and undisturbed. Turning over rocks disrupts the lives of many organisms. It will take years for the small ecosystems under the rocks to return to their original conditions.

Strict laws have been set up to control the collection of plants and animals. In the past, people have collected large quantities of organisms causing their numbers to dwindle, and in some cases have caused complete extinction. Collecting shells removes important nutrients and the habitats that certain organisms depend on.

If you are harvesting for food, please consult local Fish and Game departments to find the sex, size, and number of organisms that you can take. You should also check to see when the organisms are in season. Please take only that which you can use to ensure survival for future generations.

Credits

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without concerted effort.
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could not have been produced.

History Projects

"If we didn't tell this story, who would?"

- World History Oral History Project
  Llano Grande Center for Research and Development

- The Craftsman Houses of Falconer, New York
  The Selborne Project

- The Ghostwalk
  Vermont Rural Partnership

- The Tombstone Project
  Program for Rural School and Community Renewal

- Fryestory Productions
  Partnership Rural Initiative in Maine

"WORLD HISTORY ORAL HISTORY PROJECT"

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- Chris Layton, Teacher, 2nd grade (John F. Kennedy Elementary)
- Yolanda Garza, Teacher, 2nd grade (JFK Elementary)
- Yolanda Martinez, Teacher, 2nd grade (JFK Elementary)
- Blanca Silva, Teacher, 2nd grade (JFK Elementary)
- Rebecca Saldana, Teacher, 2nd grade (Edcouch Elementary)

ACADEMIC CONTENT AREA: World History

GRADE LEVEL(S): 10th and 2nd

LENGTH OF TIME: 18 weeks

DESCRIPTION

Edcouch-Elsa High School is located in Edcouch, Texas, a half hour from the Mexican border in the South Rio Grande Valley. The high school has over 1300 students, 98% of whom are Mexican-American. Tenth grade World History teacher, Delia Perez, is a second generation native of Edcouch, a Woodrow Wilson Fellow and a recent graduate of Yale University.

Ms. Perez states that the transition from Edcouch-Elsa High School to Yale University was difficult for her on many levels. She did not feel strong and confident in academics until her senior year. The struggle to hold her own at Yale contributed to Ms. Perez's decision to make the same transition in reverse and return to Edcouch and help other students better prepare for college and for life outside the Rio Grande Valley and this small agricultural community.

One of the reasons I wanted to teach was because I could count on one hand the teachers that I had in high school I thought were really good teachers. Then I could think of all those teachers who were just bad and would give us worksheets and not spend any time on us. They would say horrible, thoughtless things without even thinking what a comment like that would do to a student.

When I was in college I became very politically aware as far as Chicanos were concerned, and just the Latino struggle, how any person who is a minority has to struggle in this country and in this world. I was always talking about , "Oh, I have to give back to my Chicano community, you always have to give back to your Chicano community." So I knew I had a job waiting for me in Edcouch-Elsa High School.

It was an exciting time to be back in Edcouch because of the Llano Grande Research Project. I had studied multicultural education and how students really need to learn about themselves first and be empowered that way before they can really appreciate other people and appreciate diversity. I had done a study my junior year at Yale about multicultural education here at Edcouch and I tested students' attitudes about Texas history and what they learned about Sam Houston. Of course they learned how the Americans were the heroes and the villains were the Mexicans.

Ms. Perez wanted to incorporate more place-based learning into her World History curriculum in the Spring, 1998 semester, while still covering all of the world civilizations and the "contributions these civilizations have made to humanity." She designed a semester long research project around the theme of the Great Depression. The students in her three world history classes would spend one day every three weeks in one of three adult day care centers located in Edcouch or Elsa. They would also spend one day during the fourth week in a different second grade class in the Edcouch-Elsa elementary schools.

The visits with the adults included interviews to collect an oral history of each individual's experiences of the Great Depression. All the interviews were audiotaped and transcribed as well as videotaped. The high school students then worked with the local history material to integrate it into the wider national and international story of the Depression. Finally, the high school students spent time with the second graders sharing their knowledge and the stories of local people in the Rio Grande Valley who had actually lived through this period of history.

The students are learning through the project that history is real and that it is actually people's life experiences. They hear it from people that they know. It means a lot more to them than reading it from a book. They are also learning how to talk to people; they are learning about community surveys, social awareness, cross generational interaction.

But we got behind on the rest of the world history curriculum. I asked the students if they wanted to drop the project and they said no. They agreed that they would meet all of the regular world history curriculum deadlines and do all the reading, and continue the project outside of the classroom.

It is a constant evaluation because I can't say that we are going to completely pull back from this project and work really hard on world history because we have commitments to the students at the elementary schools and the day care centers. We can't not show up for a month and decide everything will be OK when we return.

All the students really care about the community history, but there are some who are really shy and don't like being put before second graders or don't like having to talk to an elderly person. There are those students who don't like the project. Then there are those students who are kind of borderline. They do well when they are in small groups, but will be completely quiet when the group is doing the classroom presentation for second graders. Then there are students who just love it. They have never had an opportunity like this before. They like to get out and go to different places.

Ms. Perez commented that the tenth grade World History Oral History class was particularly powerful for some of the girls. One of her students, Daniella, was very shy and rarely participated in class. Ms. Perez explains that:

When Daniella first came into my class she was very shy and very quiet. She had a lot of academic promise but she was very much to herself. This project was perfect for her She is a bilingual student, a Spanish speaker. She was really able to come out and talk to the clients at Con Cariño. She had something that a lot of other students didn't have, she could relate to them because they had language in common. And it really helped her to blossom and be proud of who she was and be more vocal.

Then she became really a leader in the class and it transferred over to the second grade classrooms also. I remember the first time they went in there, her group members were very shy, very nervous and intimidated. They didn't know what to say and she really just picked up the ball and ran with it. She led the classroom discussion for the whole 50 minutes that we were there. The kids loved her. They were wrapping themselves around her and begging her not to leave and asking her when she was going to come back. I saw this progress through the semester and at the end when we had the cultural arts festival, she was our Spanish speaking master of ceremonies and so she got up in front of a group of about 100 people and she introduced presenters and she welcomed everyone and she closed the ceremony and she ran things. It was really amazing to see this change in her.

She was always very close with her family, but I think that the one thing that I can identify with was that her father is very strict. He didn't let her do too many things. I took her with me to the MIRA (Managing Information with Rural America) meetings and he kind of started letting her go little by little to the point that he even allowed her to go with us to Austin for 3 or 4 days during spring break last year for the youth leadership in media institute. That was really something amazing for her that her parents would let her go away on her own. I think her parents also saw this new responsibility in her. They always got along, but she was able to get a little more independent. Even now, she is the president of the science club, she has a position in the French club, she is very involved, a member of the student council. She has really changed a lot. She was applying for a scholarship through the upward bound program. She goes to Pan American University every Saturday and everyone who attends had to apply for a scholarship from the discovery scholarship. She was getting letters of recommendation from people and going through all that process with transcripts and writing her essays and stuff.

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In her essay she wrote about her experiences in the project in my class and she also wrote about her experience as the president of the science club and how they planned this joint venture with students from McAllen schools and students from Reynosa schools [in Mexico] on the Expoferia, to really talk about environmental issues and how we are hurting the river and what we can do. I don't know how they got that collaboration together. I want to say that perhaps their teachers knew each other and worked something out or maybe it was totally student inspired. I haven't really sat down to talk with her about it. She was very active putting up posters around school, writing announcements. They made huge banners. She went to different club and organization meetings and she talked to them about what they were doing to really increase the number of participants from Edcouch-Elsa. In her I can see the success and in other students also.

Ms. Perez did not continue this particular project in the fall, 1998-99 school year. She required that students select their own local story to research and report on, but she left the content up to them. However, a number of her former students who are now juniors are demanding that they be allowed to select local themes in their history and English classes. For instance, Orlando Castillo asked his English instructor if he could research a Chicano author for the unit on twentieth century poets.

In my English class we were supposed to pick twentieth century poets and everybody was picking these Anglos and African American poets. I asked permission to do it on Chicano poets. She said yes. There is this lady Carmen Tafoya, she lives in McAllen, so she is a native from the Valley. I did it on her, but it was pretty tough to do on Chicanos because there is not much out there on criticism. T.S. Eliot and e.e. cummings have a lot of criticism, but the Chicanos have none. But the teacher gave me permission.

The other people in the class knew I was choosing a Chicano poet, and they liked it, but they said it would be too much trouble. I could have found the easy way out, but I am like a real Mexican person and proud of being Mexican American. I just decided to do it to see how it would be. I learned a lot of different aspects about the Mexican people, but it was tiring.

Ms. Perez stated that while the Oral History class had many positive benefits for students, if she were to do it again, she would not go into the day care centers with too much of an agenda. She found that focusing on a single theme was too restrictive, and that the stories the elders told, naturally, were rich enough to build links to world history events without setting up an artificial situation. Some selections from Ms. Perez's curriculum objectives and lesson plans for the World History Oral History Unit are presented below.

Tenth Grade World History Oral History:

Curriculum Objectives.

1. Preparing Interview questions

Objective: The student will prepare a list of interview questions to refer to while at the adult day care centers.

Material and Resources: Chalk and chalkboard, student recorder, bilingual student translators, word processor, prior knowledge of the Great Depression and World War II

Motivation: The students will brainstorm and list all the questions they might ask their interviewee.

Statement of Purpose: The questions that students will prepare today shall prove useful during their interviews. Every student must be prepared with a few questions to ask as a backup for moments when the student may not know how or where to steer the conversation.

Class discussion:

- Students will take turns sharing his/her list of questions.
- As a student states a question, the class will approve, disapprove, or modify the question.
- Selected questions will be added to a final list by a student recorder.
- Selected questions will be translated and written in Spanish by a student.

Closure: Select student volunteers to type the English and Spanish questions and make copies for everyone.

2. The Interview Process

Objective: The student will learn and practice the interview process.

Materials and Resources: Copies of interview agreement, blank tapes, tape recorders, transparency (interview etiquette), transparency (questions to ask).

Motivation: I will select one unexpecting and unprepared student to interview me. The class will observe his or her difficulty in conducting an interview without preparation. Others will feel compelled to practice before visiting the adult day care centers.

Statement of Purpose: Today the students will learn the etiquette of conducting an interview. You will have opportunities to practice as you interview me and one of your classmates.

Lecture and Presentation:

- Show and explain the steps of a proper interview.
- Show and explain the important questions that must be asked.

- Students will model what they have learned during the lecture. Two students will volunteer to interview me in front of the class.

Student Interviews:

- In pairs, students will take turns interviewing each other.
- The interviewee will provide constructive criticism to the interviewer in writing.
- Students will exchange partners and repeat guided practice.

Closure: Students will discuss the most frequent mistakes made by the interviewers and make a list of what needs the most improvement.

Lesson Plans:

World War II

Objective: The students will create individualized lesson plans with and for their groups to present to their respective 2nd grade classes.

Materials and Resources: WWII narratives, WWII reading material, transparency: (a 2nd graders instructional needs), transparency (generic lesson plan form), cooperation and imagination.

Motivation: How was your group successful the last time you visited with your second graders? Where could you use improvement? Now is the time to plan for your next visit and fix everything that went wrong.

Statement of Purpose: The students will work cooperatively with their teaching teams to create an educational, fun, individualized, and appropriate lesson plan for their next visit to the elementary school.

Class discussion:

- Students will review (from memory) the instructional needs of second graders and the format of a lesson plan. Display transparencies if they need help remembering.
- Discuss some preliminary ideas for strategies and activities.

Group Work:

- In teaching teams, students will brainstorm ideas for teaching strategies and activities.
- Teams will select strategies/activities and develop those ideas.
- Groups will fill out lesson plan form.
- Teams will create or gather any materials that will be needed.

Closure: Students will rehearse their presentations and make adjustments.

The Great Depression (Day 2)

Objectives: The student will prepare a lesson cycle for 2nd graders taking into consideration their instructional needs, and each group will rehearse their presentation.

Materials and Resources: Transparency1 (needs: bulleted), transparency 2 (generic lesson cycle), transparency3 (sample lesson cycle for the Great Depression), photocopies of visual aids, pen/paper, directions for group work.

Motivation: Our visit to Edcouch Elementary is only two days away! How prepared are you?

Statement of Purpose: Today you will learn everything you need to know in order to plan a lesson for a second grade classroom. In your smaller groups, you will brainstorm some strategies, activities, and basic information that must be included about the Great Depression. You will share this information with the class, and as a whole, we will decide which suggestions will work best for this topic. Once we have agreed on one lesson that every group will use. You will rehearse in your groups the presentation.

Class discussion and Media Presentation:

- Explain instructional needs of second graders.
- Explain the various steps in a lesson cycle and the importance of each.
- Explain that the basic Great Depression information must be easy to understand.
- Review sample lesson cycle. Leave on the overhead for viewing.
- Once in groups, pass around photo collection, and have each group select three. The total working photo collection will contain 10 pictures.

Brainstorming:

- Each group will suggest several teaching strategies, activities, and basic "must include" information.

Class discussion:

- Each group will share and explain their suggestions to the class. The class, as a whole, will select the final strategies, and basic information.

Closure: The students will rehearse their presentations in preparation for Friday.

"THE CRAFTSMAN HOUSES OF FALCONER, NEW YORK"

NAME OF RURAL CHALLENGE SITE: *The Selborne Project at Falconer Middle School*

SCHOOL: Falconer Central School
ADDRESS: 2 East Ave.
TOWN: Falconer
STATE: New York
ZIP: 14733
TELEPHONE: (716) 665-6624

CONTACT PEOPLE:

- Carol Birtzer, Project Director, Roger Tory Peterson Institute (716) 665-2473
- Donna Eskeli, Falconer Central School

ACADEMIC AREA CONTENT: Social Studies, Science, Art

GRADE LEVEL(S): 6th

LENGTH OF TIME: 4 weeks

DESCRIPTION

The study of community history takes many forms in Rural Challenge sites. Students in the Selborne Project have discovered not only archival and cross-generational historical sources, but have also examined local architecture as an historical text. The houses and public buildings, their design, materials and their organization into neighborhoods all provide historical data that can be studied and analyzed.

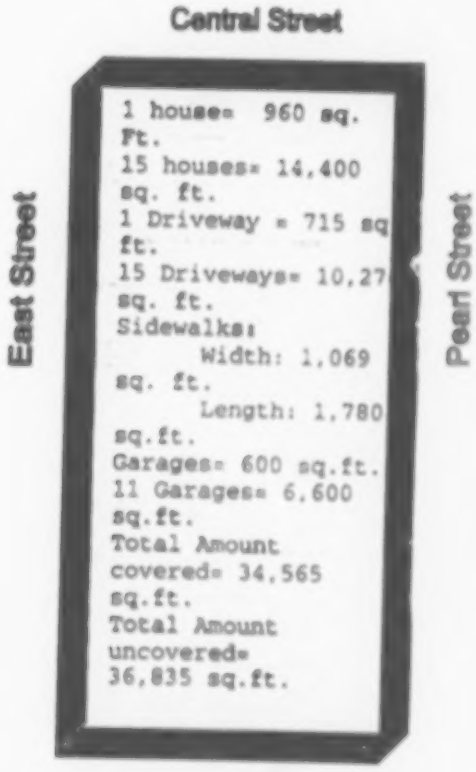
Students in Falconer, NY, well versed in observation skills and the use of field guides from their studies of natural history, began applying some of the same observational methods to houses and architectural sites that surrounded their school. Directly adjacent to school is a small residential neighborhood. Built in the latter part of the 19th century, the area had modest sized lots and a number of houses designed in the cottage or "Craftsman style." Students conducted interviews and gathered other anecdotal information that led them to more extensive research. Their research focused on the Arts and Crafts movement of the early 1900s and they discovered the relationship between the Craftsman movement and the famous Sears and Roebuck Catalog. Sears, still known for its "Craftsman" tool line, sold thousands of "assemble yourself" Craftsman Home kits at the turn of the century and shipped them by rail to sites all over North America.

Working on a hunch, students got a reprint of a vintage 1900 Sears and Roebuck Catalog from the local library and created a booklet by copying the section featuring Craftsman home models. They used their booklet as one might use a field guide; the students explored the neighborhood and discovered a number of genuine Craftsman homes. The students verified their findings by checking deeds and building permits from the town office.

Building on their work in natural history, the students used a variety of skills to complete this study in their personal journals -- measurement and estimation from mathematics, analysis from science, research and documentation from history and language arts, and observation and graphics from art to understand and interpret this important history of their neighborhood.

Adapted from Nicole Harston's Selborne Journal:

Soil covered and uncovered:



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"THE GHOSTWALK"

NAME OF RURAL CHALLENGE SITE: *Vermont Rural Partnership*

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STATE: Vermont
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TELEPHONE: (802) 592-3513
FAX: (802) 592-3513

CONTACT PEOPLE:
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- Margaret Madera, Teacher
- Lynn Talamini, Teacher

ACADEMIC CONTENT AREA: Social Studies/History

GRADE LEVELS: K-6

DESCRIPTION

Peacham is blessed with an active library and historical society. These organizations have assisted many students in History and other course work by providing resources, genealogical references and other information about the surrounding area. As students have assumed the roles of historians, archivists, and genealogical investigators in their academic work, their activities have connected them to the ongoing interests of the town. The community gains not only in creating meaningful and engaging learning environments for its youth but also in unearthing and understanding more of its own history.

One part of this historical effort has been to study the Peacham Cemetery. Students have done important work cataloging head stones and monuments, mapping their locations, evaluating their condition, documenting, collecting data, and GIS (Geographical Information System) mapping.

The "Ghostwalk," which grew out of these studies, is a special historical program done at the Peacham Cemetery three times per year: Memorial Day, July 4th, and Fall Foliage Day. The event is a collaboration between the residents of Peacham and the school children who together present a series of living-history skits in which they impersonate significant and memorable

people buried in the cemetery. The students, who have been studying the cemetery in a series of project-based curricula, take their research to a different level in this experience. After researching and selecting a particular historical person, a community member assumes his or her persona complete with period costume and dialogue. The children, also in period costume, become the children of these famous personages. To prepare for their roles, the students research the family life and attitudes and behavior typical to the period being represented. During the tour of the cemetery, visitors are able to ask questions of the ghost interpreters so every player must be well prepared with appropriate answers.

The "Ghostwalk" provides students with a significant connection to their class work and a creative means of expressing their learning to the larger public. The "Ghostwalk" is also a fundraiser for future school and community collaborations. The program is very popular and draws students and parents from all over the local area as well as tourists visiting Vermont.

"THE TOMBSTONE PROJECT"

NAME OF RURAL CHALLENGE SITE: *Program for Rural School and Community Renewal*

SCHOOL: Frederick High School
ADDRESS: Box 486
TOWN: Frederick
STATE: South Dakota
ZIP: 57441
TELEPHONE: (605) 329 2145
FAX: (605) 329 2145

CONTACT PEOPLE:
- Janelle Barondeau, Teacher

ACADEMIC CONTENT AREA(S): Computer Skills, Social Studies

GRADE LEVEL: 9th-12th

LENGTH OF TIME: semester long project

DESCRIPTION[9]

> As far as finding out more about my 'roots,' I learned that my original name was "Maunula." Somewhere down the line of generations, someone in my family dropped the 'la' from my name. – Student, Frederick High School

The high school students who were part of the "Tombstone Project" documented 344 grave sites at the Savo Cemetery in Frederick, South Dakota. Working in pairs, students selected a group of tombstones. Each group was responsible for recording and later graphing the data on the headstones in separate 20 year spans. The data began with the original homesteaders in the 19th century and continued to the present day. The information the students collected helped them gain a variety of skills from language translation and historical archiving to graphing and computer skills. On the community side, the information served to consolidate and corroborate information that filled significant gaps in the cemetery, genealogical and town historical records.

As with many locally based projects, the interdisciplinary nature grew as real life problems tested student creativity and problem solving skills. In the process of cataloging the

[9] Account provided by Richard Landry, Research Associate, Rural Challenge Research and Evaluation Team.

information on the tombstones, the students discovered that many of the early settlers to the town of Frederick were not English but Finnish. The earliest tombstones had long passages in Finnish which none of the students or their teachers knew how to translate. Initially, coping with the translation issue seemed to have only two solutions: one, to send it away and hire a translator and the other, to find a Finnish dictionary and translate the inscriptions one word at a time.

A third solution presented itself when the students decided to approach some community members who were still native Finnish speakers. They eventually found an older women who could both read and write in Finnish. She was thrilled to help the students connect their work in the cemetery with the town's cultural heritage. Interestingly, most of the inscriptions turned out to be related to military rank and commendations from Finland.

The information and the translations from the project were compiled into a single data base for use by both students and townspeople. The database included a rich array of information on pioneer families and their ethnic and cultural connections. Using software, the students manipulated portions of the data to create maps that showed a history of the town's birth rates, death rates and longevity. Many students were surprised to learn that throughout the nineteenth century, there was a high incidence of death in early childhood.

There are plans to continue this work in the other cemeteries of the Elm Valley District next year.

"FRYESTORY PRODUCTIONS"

NAME OF RURAL CHALLENGE SITE: *Partnership Rural Initiative in Maine*

SCHOOL: Molly Ockett Middle School
ADDRESS: 10 Bridgeton Rd.
TOWN: Fryeburg
STATE: Maine
ZIP: 04037
TELEPHONE: (207) 935-2480
FAX: (207) 935-4470

CONTACT PEOPLE:

- Tom McLaughlin, Teacher, 8th grade U.S. History
- Pat Higgins, Media Specialist and Librarian
- Bob Cobb, U.S. & World History Teacher (9-12) Fryeburg Academy
  (207) 935-2001

ACADEMIC CONTENT AREA: U.S. History, Computer Science

GRADE LEVEL (S): 6th-8th and 9th-12th

LENGTH OF TIME: two academic years, after school and during class time

DESCRIPTION[10]

In Fryeburg, Maine, the history teachers at the Molly Ockett Middle School and at the Fryeburg Academy (the local high school), study Maine history, United States history, geography, and economics through a local prism. We understand "Curricula of Place as helping students fix themselves in space and time here in the Fryeburg area."

In the 1997/98 academic year, Tom McLaughlin, Pat Higgins and Bob Cobb (then an intern) at the Molly Ockett Middle School started an after-school History Club. They based the club on the model of a Junior Historical Society used in some New York schools. The group of students who belonged to the History Club worked on projects throughout the school year including visiting an archaeological dig, visits to local historical sites, primary research into

[10] This account is excerpted from Tom McLaughlin, "Technology and History Help Students Find Their 'Plaace' in Fryeburg," in Partnership, Fall/Winter, 1998-99, and Connie Goldman, "We're Kids Making History: Fryestory Productions," Spring/Summer, 1998 and distributed by the Partnership Rural Initiative in Maine, University of Maine, Bailey Hall, Gorham, Maine.

historical and genealogical files, and a multi-media production of their research using the *Vital Links* software.

Tom McLaughlin, who is the 8th grade U.S. history teacher and his former teaching intern, Bob Cobb, had the students in the History Club begin primary research into their family histories which included diaries, genealogies, and photographs. First, each student used the DeLorme Topographical Atlas (made in Maine) to construct a personal map of his or her own square mile of earth. After printing out a map of their neighborhood, they personalized it, drawing in places and things important to them. One girl included her dog's grave. A boy sketched in his treehouse. Another boy framed a glade in the woods labeled: "where my father and I like to hunt." They embellish the black and white maps with colored pencils, then scan them back into the computer to further enhance and colorize them with Adobe Photoshop, photo-editing software. The students created impressive, personalized maps of their own locale and their special places within it.

After getting their bearings in space, they fix themselves in time by constructing a timeline of the 20th century on the computer using a "draw" program. They then scan pictures of people from at least three generations of their family -- themselves, their parents, and their grandparents -- and place the photos in their appropriate places in time. Each picture of a family member is set above the timeline with a line connecting it to a particular year. Many go well beyond the minimum requirement of three generations and come to school with photographs of great grandparents and great-great grandparents. (Some photos are edited to improve their quality.)

Then, students explore a CD-ROM database with thousands of images from U.S. history looking for photographs of significant events which took place during their lives, their parents' lives and their grandparents' lives. If their great-grandfather's picture shows him in a World War I-era uniform, a picture of a battle scene from that war, or one of President Woodrow Wilson can be imported from the database and placed below the timeline, directly under their great-grandfather's image. This way, students get a feel for how events in U.S. and world history were connected to their family history. World history sifted down from the newspapers and textbooks into the faces, places and events of Fryeburg, Maine.

The teachers have kept these timelines as "digitized" baselines to use with their classes in the following year. Each date or cluster of dates on the timelines will be expanded by a new generation of 7th and 8th graders in the History Club who will undertake the research into the

customs, social patterns, music, health, sports and religious history of the local area and the world.

As the students worked through the genealogical research, Pat Higgins, the Media Specialist taught Tom McLaughlin and all of his 8th grade students how to create a computer presentation of their data using *Clarisworks* and *Vital Links* software together. The teachers had discovered the *Vital Links* software at a conference the year before, and they subsequently formed a "partnership" with the software designers to adapt it for use in a local, school setting. Molly Ockett serves as the pilot site to use and demonstrate this variation.

The middle school students formed a production company entitled Fryestory Productions and using the software as a production tool the students integrated their timelines into a multi-media presentation. The History Club won a prize for their *Vital Links* production featuring the house of one of the members. They used this house to demonstrate how older houses in small towns tended to change over the years. The group referred to the book *Big House, Little House, Back House, Barn* by Thomas Hubka to support some of their findings.

The students in the History Club maintained a consistent level of interest in their research over the course of the school year. In addition to successfully managing their own work schedules and deadlines, the students stated that they also learned:

- Much more about the history of their own families and of their neighbors.
- How to use, read, analyze and interpret primary historical sources.
- How to solve technical problems in designing the production displays.
- How to work together as a team.
- How to continue their research into other local historical sites.

In the fall of 1998, the History Club started a chapter at Fryeburg Academy which serves as the town's high school. Bob Cobb runs things at Fryeburg Academy while Pat Higgins and Tom McLaughlin handle the middle school. The new ninth graders were eager to top their award-winning multimedia production of the year before. This year Fryestory Productions is focusing on the history of the school district's missing neighborhoods. Each of the towns in the district had small villages that were thriving before the Civil War and which no longer exist. The remaining cellar holes intrigued club members and sparked their study into what causes people to leave the area. They are discovering the many geographic and social forces that shape the land and the community. The high school will coordinate with the middle school club researching the routes many of their relatives took when they migrated west after the war.

Conversations among the three teachers the previous spring focused on the idea of organizing entire classrooms into production companies. In the 1998/99 academic year, they began phasing in what they had learned with the History Club into the regular middle school social studies curriculum. They drafted a plan where each of McLaughlin's 20 to 25 student classes would be divided into four or five production companies that would include a project manager, graphic artist, sound engineer, technical coordinator and researcher. These groups would document local history as well as achieve the specific history goals required for the eighth grade.

Their first assignment was to produce a company logo using a digital paint program. Then they created company stationery with their logo in the letterhead and wrote to a real life production company in New York City. The students consulted with Clinica Esttico, a production company owned by producer/director Jonathan Demme, who has a summer place in the Fryeburg school district and agreed to assist students in their endeavors. The student production companies began corresponding with Clinica as they worked on their own first projects, a two minute documentary depicting American Indian creation myths.

Producing documentary projects from different eras in history meets many of the Maine Learning Results for social studies and career preparation. Students are also learning many of the values expressed by the Guiding Principles.[11] Classroom companies report to Tom McLaughlin as the "CEO." While most members are motivated, some companies experience personnel problems; employees who don't pull their weight and who hold other people back. Project managers learn to support these students and draw up an action plan for improvement. If a group member absolutely does not work out, that student may work from text and other traditional resources to accomplish the goals of the project. Students may apply to return to a company or a group of past poor performers may begin their own company under new leadership.

Students in the History Clubs and now in the U.S. history classes share their work with the community through a local website and engage community members in their work through interviews and gathering pictures and other artifacts to include in their multi-media productions. They are learning that they belong to a family, a community, a state, and a country. They learn that everything they are part of began a long time ago, having a fascinating history waiting to be uncovered and shared.

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[11] The Maine Learning Results and Guiding Principles are Maine's efforts to outline curriculum frameworks and standards.

Comprehensive Projects

I've tried to incorporate the teaching of place as we go through everything. I think that's a way of helping community while we learn.

- Curriculum Invention in Rural Places
  School at the Center

- Pedagogy of Place: A Plan for Learning
  Llano Grande Center for Research and Development

- Akula Website Story
  Alaska Rural Challenge/Rural Systemic Initiative

- Guidelines for Project Proposals
  North Coast Rural Challenge Network

- Rural Charter School
  Center for School Change

- A School and Community in the Process of Deeper Integration
  Program for Rural School and Community Renewal

"CURRICULUM INVENTION IN RURAL PLACES"

NAME OF RURAL CHALLENGE SITE: *School at the Center*

SCHOOL: Heartland Community School at Henderson
ADDRESS: 1501 Front St. Box 626
TOWN: Henderson
STATE: Nebraska
ZIP: 68371
TELEPHONE: (402) 330-6102

CONTACT PEOPLE:
- Blaine Friesen, Principal
- Suzanne Ratzlaff, Teacher

ACADEMIC CONTENT AREA: Social Studies, Visual and Performing Arts, Computer Science

GRADE LEVEL(S): 4th

LENGTH OF TIME: one academic year

DESCRIPTION [12]

One of the more singular examples of curriculum invention in rural places comes from Suzanne Ratzlaff's fourth grade students in Henderson, Nebraska. It is this invention that will be fully depicted in this paper. It is important to look at this curriculum project in some depth for it is possible to extract significant meanings from it, meanings that illuminate the essential curriculum elements of many of the projects carried out by School at the Center teachers.

In its simplest form, Suzanne Ratzlaff's project had all the elements of a place-based/teacher-developed curriculum invention. The students studied the early history of their community, they wrote a play based on that history, and they performed their play before a large audience of community members. The play was about the Schoolhouse or Children's Blizzard, a terrible and unexpected storm that killed many people. "That's why it is called the Children's Blizzard, or the Schoolhouse Blizzard. It happened when the kids were heading home."[13] This storm struck suddenly in the mid-afternoon on January 12th of 1888. Because the weather had

[12] Written by Miles Bryant, Research Associate, Rural Challenge Research and Evaluation Team. Originally published by School at the Center, 119 Henzlik Hall, PO Box 880355, Lincoln, Nebraska 68588.
[13] Suzanne Ratzlaff, fourth grade teacher, talking about the Blizzard of 1888 with her class.

been quite pleasant and because the intense storm struck so swiftly in the later afternoon, many children died as they tried to return home.

In this curriculum invention, students learned about ancestors, life on the Great Plains, telephone rubbering, raising silkworms, immigration, family trees, Mennonite heritage, conducting historical research, locating data from various historical society websites, reading town property records, writing, projecting their voices loudly to an audience, compromising, tracking down solutions to historical riddles, writing concisely and correctly for an external audience, and writing poetry and songs.

Carly's Story

It was a bright early morning of January 12, 1888. The day was unusually warm for that time of year because it was in the middle of the winter. It was a clear, glorious, spring-like day and the warm inviting sun shone down on the big country farmstead of the two immigrants, Jacob and Anna Friesen. The clear country farmstead was located a half a mile north of the newly settled village of Henderson, Nebraska. That afternoon the three children decided to go visit. Peter, who was nine years old, and the hired hand hitched up a team of mules to the sled. And the two of them along with Katarina who was eleven and Isaac who was five rode one and a half miles to the east of the farmstead to visit their older brother, John W. Friesen. Large snowflakes began to fall on the hard and dry ground at around four o'clock in the afternoon.

(Carly Kroeker, 4th Grade Student, Henderson)

The Class

When I went into Ms. Ratzlaff's class the first time, one of her fourth graders asked me if I knew about Elias Gilmore. This question was thrown at me in all innocence. The student peered up at me from the keyboard of a powerful new Compaq computer and wanted to know. I said I didn't. Then I was told that Elias Gilmore was the first man to build a frame building in York County, Nebraska. He had moved to York County from Illinois in 1865. I subsequently learned that the students had come across this particular bit of historical information by finding Gilmore's gravestone in a local cemetery and had learned about the man by searching through the on-line records of the York County Historical Society. In this fourth grade class, students learned how to search the past. Historical research, fourth grade style, became a major part of their year with Ms. Ratzlaff.

There were twenty-six students in Suzanne Ratzlaff's fourth grade class in 1997/98. The students had names like Friesen, Rader, Epp, Kroeker, Siebert and Yoder. Many of the students

were from Mennonite backgrounds and came from large extended family groups that lived and farmed in the area around Henderson. For many, a great deal of social capital served as a foundation for their learning.[14] A few students, however, came from a state run group home and a few others had no German or Mennonite background. Still, it was, for the most part, a homogenous group of students.

It was a room full of activity. Students were always engaged. A large couch was placed up front, but not so far forward that it intruded on the space reserved for Ms. Ratzlaff. Three students described the couch as follows:

> *We're writing to you about the couch we have in our room. On our class jobs sheet we have stickers for couch and computer! Even if your name doesn't have a couch sticker you can still sit on the couch, but if a couch person comes and says, "It's my couch day" you have to get off if it's not your couch day. The couch gives us a chance to sit in a soft position and lay back to relax! We also use the couch when we're learning.*
>
> *-- Laci Friesen, Carly Kroeker and Melissa Hiebner, Henderson 4th Graders*

Chairs radiated in a semi-circle behind this couch. Along one wall was a bank of large windows. The upper windows were festooned with various mementos from past invented curricular experiences. A large dream catcher,[15] a picture of Jimmie Stewart,[16] and a variety of other objects caused one to wonder what memories they evoke for teacher and student. In a rear corner there was a desk where a teacher's aide worked compartmentalizing and reading student work. Ms. Ratzlaff's desk was in a forward corner, quite small and clearly not a place at which she spent much time.

Along the back north wall, cabinets and shelves provided storage space. A row of computers and a color printer were arrayed down the east side of the room. This equipment was purchased through a grant that Ms. Ratzlaff was awarded for her exemplary teaching.[17] One of these machines was wired to the school's internet server and students were often actively using

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[14] The term "social capital," coined by James Coleman evokes a useful concept in thinking about Henderson's students. Friends, relatives, church, extended families all form a rich web of support for many students. Consequently, there is a consistent and persistent reinforcement of desirable behaviors and learning outcomes that help guide students toward superior academic performance.

[15] "We are going to tell you about the Indian artifacts in our room. We will tell you about Thursday, April 30, 1998 when Sherry Breece, who is Lakota Sioux, brought a dream catcher and let us keep it in the room. It sits on the top windowsill of our classroom." (These comments were in a letter from Rachel Rohren, Whitney Hederick, and Heather Breece, all Henderson 4th graders.)

[16] "Our teacher, Mrs. Ratzlaff, is a huge fan of the movie "It's a Wonderful Life" so in one corner of our room she has a poster of that movie. She even has an autograph of Jimmie Stewert. She got it when her class in 1997 sent him some flowers while he was in the hospital. She has the video in black and white and she shows the movie every Christmas to her class." (Comments by Randi Bergen, a Henderson 4th grader.)

[17] Suzanne Ratzlaff was awarded a Peter Kiewit grant for exemplary teaching that allowed her to purchase the computer equipment.

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the internet to discover information about a topic. It was instructive for me to watch how useful this kind of arrangement was in contrast to the more common configuration where networked computers are located in a special room or in the media center. In Ms. Ratzlaff's room, students were able to utilize this resource as they needed it. If, for example, a question emerged about the identity of the hired man who helped the Friesen children into that haystack so many years ago, these historical sleuths can log into the website of the York County Historical Association, access census and property records of 1888, and possibly determine the real name of the hired hand. And they can and do perform such tasks cooperatively so the learning is not confined to one student interacting with one machine.

Each day, Ms. Ratzlaff writes the daily routine on the board at the front of the room. An atypical schedule (because of testing) was as follows:

8:20-8:30	Current Events
8:30-9:00	Hyper Studio
9:00-9:25	News Bowl
9:25-9:55	PE
10:00-11:00	CAT Test
11:00-11:05	Cracker Break
11:05-11:45	CAT Test
11:52-12:20	Lunch
12:20-12:50	Recess
12:50-1:50	CAT Test
1:52-2:15	Pick Parts
2:15-2:35	Recess
2:35-3:00	Work on Attitudes
3:00-3:30	Jobs

I was able to witness the events between 1:52 and 2:15 on the day I was visiting. During this time the class picked parts for their play. This was done cooperatively. The group made decisions about process; Ms. Ratzlaff made decisions about rules. Everybody had to have a role; not everyone could have the role they wanted; people had to be respectful of each other and not think one student or another could or could not perform the role s/he drew. Like a conductor leading an orchestra, Ms. Ratzlaff led a noisy chorus of 4th graders through the process of identifying who would get what part. Brant Epp got to do the lights; John McMenamin drew the role of manning the left spotlight; Randi Bergen was appointed as Narrator #1, a role she performed excellently the night of the play. Jerry Yoder was selected as Jacob Friesen; Melanie Friesen was chosen as Anna Friesen. And on it went. Students drew roles from a hat. There

were no comments made by one student about another's ability to perform. All remained enthusiastic and supportive of each other. They accepted what they drew.

This classroom has always been highly active and full of energy when I have visited. It has also been a classroom in which one moves quickly and seamlessly through the many transitions from one topic or subject to another. After students had their assigned parts and had discussed some of the things that they still needed to work on, with no direction from Ms. Ratzlaff, they broke into small working groups and began another topic of study. Some worked in the classroom; some went outside in the hallway and lay on the floor. All were busy.

In terms of curriculum invention, this is a room that exemplifies the types of conditions that appear to most foster creative work. It is safe. Students are not hesitant to answer a question. They are frequently invited to respond to a question by the rapid question and answer patterns the teacher establishes. And, when sometimes the students get a little too loud or inattentive, she and the other students exert controls. Below is an example of a dialogue. Ms. Ratzlaff (SR) begins by talking about a building in the downtown. Several students are not paying attention.

SR: It was a main street store, but it kind of looked like a house.
And when I moved here, there was Edna's Beauty Shop upstairs.
Now, I never went in the building.

[Student talk, getting louder]

SR: Yes, she has the beauty shop in her house now (in response to a statement by a girl in the front row).

[More Student talk, getting louder]

SR: Yes, that door was still up there.

Student: Everyone sit down. Sit down.

Students: Hey people, sit down.

Michael: Is this thing still recording? [Asking me if my tape recorder was still on.]

SR: Look right here. Do you see what Heather is showing us? Do you see right here? (She points to an image of a book on the afghan that she is holding up for the class to examine.)

Ms. Ratzlaff guides student attention by capturing it. When she needs to have students listen, she does so by doing or saying something that attracts their interest. These students are well disciplined. The culture of the room is focused on learning.

The Teacher

Suzanne Ratzlaff has been a decorated teacher. She has won recognition from many sources. Several years ago she received a large award that allowed her to purchase technology equipment for her classroom. Her students have been recognized. The play described in this narration was chosen by the Nebraska Social Studies teachers as the project they wished presented at their annual meeting.

I was once at a Foxfire workshop where Ratzlaff was asked, along with all of the other participants, to write or draw on the board what they think of when they think of the phrase "assessment of student work." Ratzlaff drew a smiling face and a sad face and after each wrote respectively as follows: "Student-Teacher Created Rubrics" and "Teach to the Test Rubrics." In her classes one sees multiple and continuous examples of student/teacher created learning. This class is one of those examples of curriculum implementation in which evaluation and assessment is tightly connected to the learning. These students knew that their writing would be public, that parents and uncles and aunts and cousins would be reading their words. These students knew that they would perform their play before a large and critical audience. They knew that Ms. Ratzlaff wanted them to have their facts right before they published anything. And they also knew they were all expected to work cooperatively in order to achieve more than any one of them could have done operating independently.

The evaluation or judgment that these students anticipated was far more socially connected than are many evaluations. Their work would be on public display and they could be certain that the public would examine it. Their play would be performed publicly and they could be sure that a critical but supportive audience would watch their performance. This is a different kind of high stakes evaluation than that endorsed by proponents of state-wide achievement tests but one that has an equal power to shape behavior and learning. The public display of work in the form of an exhibition, performance, gallery walk, poster presentation, or reading is a form of judgment compatible with a curriculum that is place-based and teacher-developed.

The Exhibition

The exhibition of this play was masterfully carried out. It took place in an auditorium designed to hold about 500 people. This Henderson Theater, as the students labeled it, can be entered through its own separate lobby. When I arrived, the parking lot of the school was completely full. This is an impressive facility for a town the size of Henderson. In the lobby area students had set up exhibits that they and parents and seniors would explain after the

performance. As patrons entered the auditorium, students handed them the newspaper/playbill they had created for the play. The Playbill was headed with the line, Jacob Friesen and the Blizzard of 1888. Students then wrote about the events of the time and of their discoveries as historical researchers. The headers told the story of this learning: "Local Farmer Saves Three of His Children," "The Westphalen Girls," "Jacob Selling The Land in Russia," "I'm Related to Jacob and Anna," "Old Frank," "Nebraska Mennonites Get Their Food from the Mennonites in Iowa," "The First House," "The Watch of Jacob Friesen," "Who Was the Hired Hand?," "Jacob Buys Land in America Silkworms," "Telephone Rubbering," and "The Rolling Pin." Each brief article builds a context within which the actual story of the blizzard occurs. For example, "Old Frank" recounts the story of Jacob and Anna's favorite horse.

My field notes from that performance read as follows:

> *In the theater there were about 400 people, or so it seemed to me. The place was 3/4 full. I may be exaggerating but it was a large crowd. The stage was softly but well lit. Off to the left were the microphones for the narrators. To the right were the sets for the part about Jacob and Anna Friesen.*
>
> *The students began the play with the Bradshaw Blizzard story, perhaps a nod to their new partner in the upcoming consolidation of the two districts. The students then presented a little scenario about two sisters who died in the storm. Next was the story of Jacob and Anna Friesen from Henderson. This was the heart of their performance.*
>
> *Note that before beginning the actual narrative of the blizzard, the narrator, Randi Bergen, asked that all the descendants of Jacob and Anna Friesen stand. About 3/4 of the audience stood at this point. This was a very poignant moment. Next, they had Jay Kroeker, parent to one of the students, accompany the whole class while they sang the Blizzard Song to the tune of the "Streets of Laredo."*
>
> *They performed the play they had written over the past few months, a play that displayed their historiographical research skills.*
>
> *After the play they held a reception. Parents and community members as well as descendants of Jacob and Anna were there selling cookies, displaying mementos, and raising money for the Immigrant House, a museum project in which the community is engaged.*

An example of their historical research is provided below. This example illustrates many of the commonalities in how the students carried out their research for the play. The students unearthed the story of Old Frank, a story that lay behind an almost legendary horse blanket that still existed in one of the families of the community. To do this they had to interact with community members and carry out what amounts to oral interviews. They had to write up these

interviews for an audience of community members. As a consequence, "Old Frank" may well become a legend in Henderson. He will certainly be remembered as a consequence of this play.

"Old Frank"

Jacob and Anna had a big barn for their horses, but their favorite horse was the one named "Old Frank." After Jacob and Anna retired, they would hitch up "Old Frank" every Sunday, and go visit their children.

When "Old Frank" died, they loved him so much that they made a blanket out of his horse hair. Today the blanket is still called "Old Frank" and hangs in the basement of Joe Pankratz. – Heather Breece, Reporter

An equally dramatic exhibition of a different nature is available for anyone in the world to examine. Garrett Friesen, a previous 4th grader, placed the story of Jacob and Anna on the web page of the York County Historical Society. It can be accessed at <http:flwww.rootswebv.com/-neyork>. This is a demonstration of learning. Not only was the story constructed out of a process of historical study but also its presentation in a highly technological fashion demonstrates a high degree of learning.

The School and Community

Henderson entitled its school the Henderson Community School until a recent merger with neighboring Bradshaw altered this name to the Heartland Community School. The word community is significant for there is community ownership in this school. The divide between school and community is small. Community members are in the school frequently; school people have many, many links to various community organizations. This is in keeping with the strong Mennonite communal heritage.

The school is located in a village of approximately 1,000 people that sits just south of Interstate 80 near the geographic center of America. Henderson Community School is a very homogenous place by most contemporary measures. The 1990 U.S. Census Report indicated that there were 999 individuals in Henderson and that 995 of these were white, one was black, two were Asian, and one was not part of the federal racial categories and so was listed as "other." A

great majority of the population was part of a family, most either were or had been married. The average number of persons per family was 2.78.[18]

Henderson is a modern farm community. Huge corn, soybean, and milo fields dominate the landscape, running along the roads' edges right to the lawns and driveways of the scattered farmsteads. Unlike many places in Nebraska and the Great Plains, there are few abandoned farms in this region. The land is too profitable now that a ready source of water from deep wells is available. The most notable structures that break the flat plane of the prairie are the grain elevators owned by the cooperatives and a spheroid water tower, constructed in 1980, visible also from miles away.

> *I took the picture of the water tower 'cause like that is pretty much the tallest thing in Henderson you see from a long ways away.*[19]

The grid-like town appears dropped in the middle of these vast flat fields. It is a clean town with very little that looks old. The school's art teacher, Doug Smith, noted that there is no visible antiquity in Henderson. "All the old buildings," he said, "have been torn down." The village homes are surrounded by some of the most luxuriant lawns in all of Nebraska, a condition that Bill Bamesberger explained as attributable to the very abundant and cheap water the town pumps for all of its residents from the Ogallala aquifer. Two banks, several restaurants, a grocery store, a printing business, several gas stations, several companies that make and market center pivot irrigation systems, several welding shops, and a small medical clinic mark the town as more economically viable than many Nebraska communities of comparable size. Its main business is agriculture and what exists in the community is there to service the many large farming operations that surround the town. Henderson sits on an area of the Great Plains where the top soil is deep and rich. The going price in 1996 for an acre of farm land was $3,200. By most measures, Henderson is a wealthy community.

> *In the lowlands, the eight-inch sample was Silty Clay Loam and the fourteen-inch sample was Loamy Sand. In the transition zone, the eleven-inch sample was Loamy Sand, and the fifteen-inch sample was Silty Clay Loam and the seventeen-inch sample was Sandy Loam. In the highlands, the twelve-inch sample was Silty Loam.*
> *Source: Prairie Scholars, Henderson Sophomore Class, 1996.*[20]

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[18] 1990 US Census Data, Database: C90STFIA

[19] An eighth grade student in Ms. Goertzen's English class is describing a photo he took of the spheroid water tower that dominates the visual landscape of the town.

[20] An integrated biology and English class studies the land, the water, Nebraska authors, the original prairies fauna and flora, the Sand Hill Cranes, the wetlands, the River. This quote was from the scientific observations of a student in this integrated class.

It is also a Mennonite community and religion is extremely important to its members. I often asked the question: since the Mennonite religion appears so influential in the local culture, how do Mennonite values influence what goes on in the school? Below are some responses to this question.

> *Well, my perspective is that I don't think we have the discipline problems that would be characteristic in some other schools. The young people still come from basically stable families where they have a Mom and a Dad and the traditional family. I think this is a positive thing. Mobility and technology have affected young people, much as they have in other communities. They are used to watching a Nintendo or left to do things on their own. Their social skills are affected. In the past I believe there was much more emphasis on family doing things together, whether it was necessary or not. It was a point of learning from another generation how we do things and that we do these things. I also think that in school there is still a high commitment to responsibility, of getting one's studies done, that that is taken seriously. The expectations are there and we will abide by them. But I do believe that isn't as strong as it used to be. (Interview with Lois Preheim, community member, March, 1997)*

> *I guess I would have to say I am a pacifist too. I don't support war, I guess. Fighting. I support helping other countries who are in need but I think there are ways to do this without military force. However, I do think it is important that we understand the historical importance of the world wars, as was displayed in All Quiet on the Western Front, and the perspective since that story is from the perspective of a different culture. (Interview with Sarah Ulrich, 12th grade student, 1997)*

There were many Mennonite values that various individuals felt influenced the school. The attributes that Lois Preheim identified -- a respect for adult authority, a belief in family, a willingness to invest in the future--all of these were seen in the school. There were discipline problems, but these were few in nature. Only once in many hours in the school did I find the principal dealing with a discipline issue. Students were open and friendly to me as an outside visitor. There was a strong focus on academic achievement. There were nine students in the senior class who qualified to be the graduate speakers with identical 4.0 grade point averages. Teachers indicated that most seniors were headed for some kind of higher education after graduation, about 90%.

Henderson Mennonite Centennial
1874-1974

Thirty-five families comprised the original Mennonite settlement in York and Hamilton Counties, Nebraska. They were part of a large segment who left homes in South Russia in 1874 and began the trek that took them to the American plains. Originally from Holland, these people, who believed in peace as a way of life, had gone to Prussia and finally to the Crimea in 1790. When their privileges of military exemption and religious freedom were threatened, thousands emigrated to North America.

The Mennonite immigrants purchased land from the Burlington and Missouri River Railroad. Generous in its services, the R.R. Company erected an immigrant house which provided shelter until individual homes were built. Its location is designated by a commemorative marker one mile east of this site. By 1878 approximately eighty families lived in the settlement and a town established in 1887 was named in honor of David Henderson, an earlier homesteader. Faith in God and a spirit of perseverance sustained these settlers through different experiences.
When deep-well irrigation became widespread in this area in the 1930s, fields of corn replaced the famous Turkey Red hard winter wheat Mennonites had brought from Russia. A new era in agriculture and industry had begun.

Henderson Centennial Committee, Nebraska State Historical Society

I had the sense that the nature of the culture in this school was what Edward Hall identified as a high context culture.[21] Norms were more powerful governing forces than rules. In a high context culture, people rely on informal communication and knowledge of each other and each other's context as ways of establishing norms. As one small illustration, Julie Goertzen, an English teacher, told me that she had been at a conference in Kansas and after giving a presentation about the work her students were doing in the local community she was asked how she had gotten permission from the administration to have her students out and about in the town. She was surprised at the question. It had never occurred to her that she needed permission to modify her curriculum. The principal, Blaine Friesen, confirmed this and said that trust was quite strong among the staff. This would be an example of how norms provide cohesion, whereas in a different school, cohesion might be attained through bureaucratic rule. The connection between the school and community is, I think, as follows: just as a high context culture exists in the community,[22] a parallel high context culture operates within the school.

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[21] Edward Hall, *Beyond Culture*, Doubleday, New York, 1976.

[22] There are many, many social events that bring people together in this community. Most are focused on either church or school activities. Examples include a mid-summer community fest, a Christmas concert, an annual band performance and Band Parents Smorgasbord, a church canning operation that puts up meat for charity, athletic events and a Mennonite Central Committee Sale that attracts people from all over central Nebraska.

Another example of high context culture at work emerges frequently in Suzanne Ratzlaff's class as she is able to instantly reconstruct the genealogy of virtually every student in her class. She frequently will instruct a student on who their uncles married and how that student is related to a variety of families.

Another aspect of this school and culture appears to be a tendency to operate in some isolation. Persecuted for their Anabaptist religious beliefs from about 1530, the people became known as "die Stille im Lande" or the "quiet on the land."[23] Generations of experiences in which they were viewed with suspicion if not dislike have caused the Mennonites to live cautiously. For many years, Henderson kept pretty much to itself. In recent years people have become more open to outsiders and more assertive in presenting their particular side of things. One example of this was a case involving a dispute over the location of a municipal sewage treatment plant in which Henderson took on the environmental lobby of the seventies and eventually won.[24] This history of homogeneity makes the changes of the present unsettling. There are new families in the town; there is a children's home that brings wards of the state to the school and community. In the spring of 1998 changes in state educational financing forced the school into a consolidation with neighboring Bradshaw, an event that has been very disquieting to the residents of the community. Yet, the hesitancy to be open to what is around them is slowly diminishing.

> *There was special consideration made to hire people from the outside, to bring in new ideas, and to help us broaden our understanding. I think attitude and tolerance toward the Children's Home and the outside world has helped us to progress, if you call today's activities progress. That's been going on for a long time, trying to get other people into the school system. -- Interview with Lois Preheim, community member, March, 1997*

In summary, the religious nature of the community and school is a force for stability and slow change as well as for particular values such as pacifism, service to others, and high future aspirations. The play put on by Suzanne Ratzlaff's class fits well within these community expectations.

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[23] Stanley Voth, *Henderson Mennonites: From Holland to Henderson*, p. 3.

[24] Bill Bamesberger described in great detail one of his real triumphs as a town manager when he was able to secure permission for a sewage treatment plant to be located in a wetland area that housed a protected bird species. He had to do this over great protest from environmentalists and much resistance from some state agencies.

What the Students Learned

In a speech to a School at the Center humanities conference, Bobby Ann Starnes suggested that rural teachers have to be assertive in underscoring what it is their students learn.[25] What did Susan Ratzlaff's fourth grade student's learn in the process of building their play about the Blizzard of 1888? The class members were asked: 1) What did you learn about doing historical research? 2) What did you learn about problem solving? 3) What did you learn about communication? Each reacted in writing.

Responses to the first question about historical research are instructive. "I will never forget that it takes a terribly long time," wrote one student, echoing the sentiment of many class members. A number of students commented on being surprised. "I learned that history can surprise you and you have to know where to get your information." Students noted how pleased they were when they found an answer to a puzzle. It is important to note that they were sophisticated in their understanding. They did not speak of "the answer" but rather of "an answer."

These 4th grade students also learned how to construct a web of factual information about a very old historical event. They learned where to go for information; they learned how to interview individuals; they learned technological skills; they learned about history by doing historical research. A large part of this effort involved problem solving. Creativity becomes particularly key when there is no known pathway to the solution of a problem.

Learning in this class is like an iceberg. One sees a small and meaningful expression of something learned. One knows that beneath this small expression there is a great and vast experiential and knowledge base. Garret Friesen's story about Jacob and Anna's history that has been located on the webpage of the York County Historical Society is an example. A great deal of learning took place in order for that expression of learning to take place. The same thing is true of this year's 4th grade presentation of the Blizzard of 1888. When student Andrea Peters writes, "It is hard to work with a big group when you are problem solving. You've got to work hard to solve it,"[26] she is giving voice to the continuous issues that need to be confronted when one learns in this way. The process is a long and deeply experienced one. The product is a measure of that process. These students learned to persist in their problem solving.

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[25] Bobby Ann Starnes, Director of Foxfire, delivered this speech on March 7, 1998. It is available from School at the Center's *From Our Own Earth* series.

[26] Andrea Peters wrote these words in a communication to Miles Bryant.

The need to solve problems was experienced in a very practical way as well. Students had to prepare and produce a dramatic production. In so doing, they had to work together. Bret Jost wrote that "picking parts took a lot of work because there was a lot of trading. Like I was first going to be the light dimmer but then Brent Epp got picked to be the hired hand, and I decided to trade with him. The hired hand's name took close to three months to figure out....Another problem was to be loud enough. Whenever we would practice the play we were too quite (sic), but then we noticed if we're all quiet the night of the play, everyone will be bord (sic) so then we talked louder."

As 4th grader Melanie Friesen noted, students learned to communicate by "reading, writing, speaking, and listening." Kristin Hiebner said, "I learned that when you communicate you have to know how to read together, speak together, listen to others, and wait your turn when you want to talk." Each of these students experienced this curriculum invention in common; each amassed a unique set of learning outcomes as well. All learned how to write more accurately and economically for the publication they produced. All learned how to access information so that they could begin to piece together the facts of an historical event. All learned about the weather and customs and social conditions of pioneer life over a hundred years ago. Learning was also unique. Andrea Peters learned she was related to Jacob and Anna Friesen, a personal discovery that made this learning different for her. Others in the class also were directly related to these historical figures: Derek Friesen, Cole Siebert, and Trent Siebert.

Could these students parse a sentence more skillfully? Could they do a better job on a spelling test? Would their collective scores on the statewide 4th grade social studies tests rise as a result of this curriculum invention? Probably not. But, they have the great benefit of example. They studied a topic in depth; they learned how hard it is to do this kind of work; they persevered to significant success; they have seen approval registered in the reactions of teachers, community members, and those beyond their community. What they take with them, then, is a learning that exceeds the minimal. They have the memory of an experience that will guide them in subsequent academic experiences. They will know how better to gather data, how to write about that data, how to present that data. They will have confidence that they can write real history, not regurgitated history. They will have confidence that they can produce a product that will make everyone around them sit up and take notice. Their skills and knowledge about process will transfer with them to future learning experiences.

The Implications for Curriculum Development

The learning that has been described above has a great deal of power. It is learning that is multi-dimensional in that students are fully engaged and active participants. The motivation for most of these 4th graders was intrinsic. The rules that governed behavior were normative, not bureaucratic. Students were part of a community focused on the same object. Discipline was not a problem because students attended to a task they enjoyed, wanted to complete, and valued. Learning was rigorous in that students had to provide answers and had to produce products that would not prove a source of embarrassment in public. The students wrote until they could find no errors and until their writing captured what they wanted to convey to the public. They researched until they had found a plausible answer that would allow them to construct the events of their historical play.

That is the student side. The teacher side is equally instructive. What needs to happen for teachers to invent such curricula? To be sure, the talents of the individual teachers play a large role in curriculum invention. But, there are contextual factors that can contribute to such work. The literature on creativity provides clues. One of the most important centers around the nature of the work being attempted. For that work to require a creative response, the work must have what is known as an heuristic end. That is, there can be no clear pathway to a solution or answer or outcome. That pathway must be experienced; solutions are invented as the pathway is traveled. The 4th grade play of the Blizzard of 1888 has a history longer than the one I observed.

Suzanne Ratzlaff's approach to learning has the following characteristics that can be found repeatedly in the curriculum innovations of School at the Center teachers:

- **Active engagement:** Students engaged in this work exhibit extended periods of concentration without the need for teacher direction or oversight. Their minds are attentive to what they are doing.
- **Ethical engagement:** Students doing this work feel a sense of worth about what they are doing. In the case of the Blizzard of 1888, the students felt they were preserving a past very much worth preserving. Here is what Keshae Friesen wrote: "If you forget a story and the person who told you dies, that story is lost, unless someone else heard it."
- **Intellectual engagement:** Students doing this work had to problem solve. There was no clear pathway to a solution to the reconstructing of this history. Students

experience what Amabile called creative heuristic problem solving.[27] Learning of this sort requires a creative effort to construct a response to a question or an issue for which there is no clear solution path. How does a 4th grader learn about what happened to two children in a blizzard over one hundred years ago? It is an heuristic problem.

- **Public engagement and assessment:** Students make their work public, beyond the confines of the classroom. They try to make their audience as wide as their work will permit. In this case, the project moves beyond Henderson. This is high stakes assessment of a different sort than the type driven by a statewide test.[28]
- **Place-Based Engagement:** Unlike curriculum that is written for a huge audience of children, this project is very locally focused. Is this knowledge of value? Is this knowledge of particular human beings at a very particular moment in history of any worth? Perhaps if the teacher wanted the children to learn about death from blizzards a better choice would have been to have these 4th graders read about the Donner party in California's blizzard as many school children in many states do. But, if educators seek to have children construct knowledge in meaningful ways, the place-based content works more powerfully on the children's imaginations than does the more distantly relevant curriculum content typical of that driven by standardized testing or widely disseminated state curricula.
- **Increased Transfer Probability:** The probability of transfer, applying what one has learned to different problems in different contexts, is greater because the knowledge is more thoroughly learned and acquired. If what one learns makes little impact on a person's imagination, it is unlikely that the individual will recall that learning when facing a different set of issues in a different place and time.
- **Teacher-Designed and Developed Learning Experiences:** In all instances, the School at the Center curriculum projects that have captured attention have featured the work of a teacher or group of teachers at the local school level. These projects are exciting to teachers as well as students because they are developed locally.

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[27] Theresa Amabile studied the nature of creativity in a book entitled *The Social Psychology of Creativity*, (1983), New York: Springer-Verlag. See also Miles Bryant, (1988). "Teacher Evaluation and the Diminishment of Creativity," *Planning and Changing*, 1, (1).

[28] The Texas exit test is one of the most notable examples of a testing program administered by a central agency to assess and evaluate the learning of individual students. The Henderson test is the test of community opinion, administered locally by the relatives and friends and acquaintances of the students.

Conclusion

The implications of this type of curriculum invention have great significance in an era of curriculum domination by high stakes outcomes assessment and an expanding state role in defining learning. As curriculum reform is developed and disseminated via various statewide or regional networks, a convergent process is set in place. What students learn and how they learn becomes more similar. In Nebraska, the requirements of the new state standards are imposing. These require in reading and writing alone the demonstration by all students of 60 competencies.

No single one of these is onerous. Students are to use phonics and word structure to sound out unfamiliar words; they are to identify and use correctly antonyms, synonyms, homographs; they are to interpret information from diagrams and charts; they are to use technological resources such as a CD-ROM; compare the use of fact and fantasy in historical fiction with other forms of literature.[29] However, combined with the other standards in other subject areas, the volume of required demonstrations may have a chilling impact on the creative curriculum inventions illustrated by Suzanne Ratzlaff's Blizzard of 1888. And these standards will tend to force learning to converge about a similar set of activities and content.

Furthermore, the curriculum invention described in this paper offers a contrast. The Blizzard of 1888 is an example of curriculum divergence. The project is idiosyncratic to the teacher, the students, and the place. There are commonalities that could link the work to the work of other historical researchers in other fourth grade classrooms, but these are broad commonalities. Divergence is expressed differently in each place. Only Henderson has a Jacob and Anna Friesen or Suzanne Ratzlaff. This curriculum of divergence is the far more human of the two approaches. Curriculum invention in rural places embodies the celebration of human cultural diversity and reminds us of what has historically been one of the great strengths of American education. The sub-current that has existed throughout this century that has introduced many student-centered, project-based learning experiences into America's classrooms has been a curriculum of divergence, of unique individuality, of teacher, student and community invention. These inventions in rural schools are marked by exciting and memorable learning.

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[29] These illustrations of the Nebraska Reading/Writing Standards are drawn from the list adopted by the Nebraska State Board of Education on February 6, 1998.

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"PEDAGOGY OF PLACE: A PLAN FOR LEARNING"

NAME OF RURAL CHALLENGE SITE: *Llano Grande Center for Research and Development*

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ACADEMIC CONTENT AREAS: Language Arts, Science and Health, Mathematics, Life Skills, Social Studies, Art and Music, Special Activities

GRADE LEVEL(S): Pre-K-12

LENGTH OF TIME: multi-year

DESCRIPTION[30]

The Llano Grande Research Project has embarked on a comprehensive school and community-wide program whereby the schools and community are working to preserve our South Texas heritage. At the core of this community and school collaborative has been the student: student learning, development, and growth.

Our challenge has been to move from the traditional methods of instruction where teachers and administrators are in control to one in which students and the community become integral in the decision-making and learning processes. The project is ambitious, promising to employ the participation of so many; but we are convinced that by being inclusive, we can more

[30] Information provided by Francisco Guajardo.

effectively prepare our youth for life outside of school, and thereby effect a brighter future for our community.

A central concern of this project is to re-define the rationale and method for teaching history. Ninety-nine percent of Edcouch-Elsa and La Villa students are of Mexican ancestry, yet our textbooks treat people of Mexican origin only peripherally. The story of rural, South Texas, socially, culturally, and economically has yet to be told. Only the region's political history as it relates to the state and national levels has received notice by mainstream academia, and so our community exists without thorough documentation. Therefore, we have begun to retrieve elements of our past; and a new, truer history has emerged, one which empowers its authors as they work together to give themselves a clearer and richer identity. The discoveries we have made and the awareness we have developed are evident in the pages of the Llano Grande Journal. This journal began as an introduction to the project and has become a voice for the untold stories of the Delta Area.

The language arts have also benefited from the new direction in place-based curriculum. The journal is a valuable classroom tool because it allows our youth to read the history of their hometown and provides a forum through which they can contribute their own writings, whether formal or creative. Additionally, the oral history projects offer opportunities for practical use in foreign language courses. These projects include interviewing, transcribing, editing, and publishing experiences that naturally require a study of the Spanish language.

Pedagogy of place also addresses the natural sciences. For example, chemistry and physical science students can study soil and water testing measures; they can learn about climatic trends and conditions that have affected our geographical region. Biology classes can learn about native vegetation and animal life. As students become aware of the ecology around them, they can become more responsible and productive citizens.

With the wealth of cultural lore that students bring to our schools, the study of fine arts can become an exciting outlet for student expression. Several classes have already covered units dealing with visual arts such as painting, drawing, and manual works. Furthermore, we have seen a number of students participate in the performing arts as they directed and acted in a dramatic production adapted from a short story written by a local writer. The potential for art classes to engage in place-based learning is virtually unlimited.

Even the vocational and technical curricula can be infused with learning that contains local relevance. At the present time, several student/community groups are involved in privately funded programs with the objective of assisting with downtown renewal in Edcouch and Elsa.

Actually, our vocational departments have probably been the areas that have most faithfully worked with our communities over the years.

It is through this type of teamwork, in which students learn real life skills by studying their local surroundings, that we see student achievement and success reach its highest potential. As we continue learning about and with our community people, we are developing our resources for this pedagogy of place. And by learning about ourselves, we all become empowered

What follows is a pamphlet produced by the Llano Grande Project describing a model of pedagogy of place and its unfolding in the lower Rio Grande Valley.

Mission Statement

The Llano Grande Research Project serves as a resource for our community and schools to create the richest and most meaningful experiences for our children. The Project facilitates the study of the elements of our place, such as environment, history, economy, spirituality, and politics. This learning should result in the forging of strong relationships with people in our community and should prepare our youth to function in a global society.

Local World War II veterans visit LBJ Elementary School in Elsa, Texas.

Principles

The Essence of Place: Experiencing the Environment

Students become aware of the importance of taking care of their surroundings. This awareness fosters a greater concern for continuing world preservation.

The Essence of Yesterday: Experiencing History

Students become aware of their heritage. Knowing their history lays the foundation for further, more meaningful learning.

The Essence of Worth: Experiencing the Economy

Students become aware of their role as responsible citizens who can participate in the community's economy.

The Essence of Unity: Experiencing Spirituality

Students become aware of their personal life experiences dealing with the emotional and spiritual self in individual and collective ways.

The Essence of Community Participation: Experiencing Politics

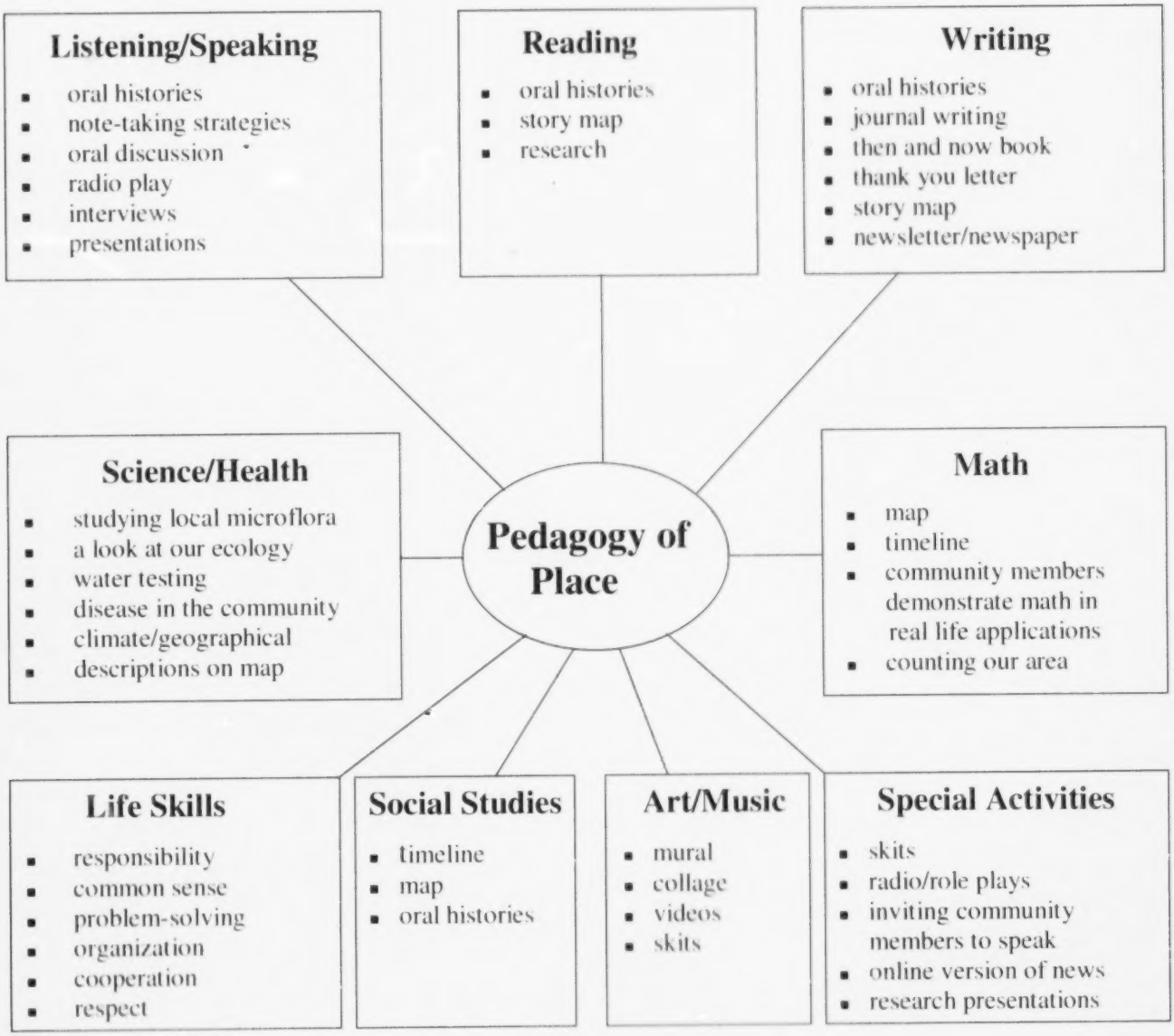
Students become aware of the need to actively participate in the decision-making process of their city/community.

Scope of Pedagogy of Place Studies
Llano Grande Research

Grade: Pre-K-12

THEME: ***Pedagogy of Place***

Unit Generalization: As students study themselves and their community, they make positive connections to this place they call home.



Pedagogy of Place - A Plan for Exploration

1. Elementary Plan

Then and Now Book *(ongoing)*

Students will take a questionnaire home that the parents and/or grandparents will complete. The questions can focus on a specific topic (i.e. the first day of school, Christmas, Easter, etc.). Students will compose one paragraph based on the information from the questionnaire and then write another paragraph about their own experience. This activity can be continued throughout the year so that the paragraphs can be compiled into a book for an Author's Fair.

Journal

Using a similar questionnaire as a basis, students will adopt a character's point of view and write about a day in the life of the character.

Timeline *(ongoing)* timeline in the sequence that they occurred in the story. Students will display various events that were gathered from their interviews on a timeline.

Story Map

Students will summarize one of the oral histories from the Llano Grande database. A typical story map has the following elements:

Characters **Setting**

Pictures

Problem **Solution**

However, teachers can select different elements, depending on the story. In addition, the "Pictures" section can include poems, drawings, paintings, or even songs that illustrate certain aspects of the story.

Interview

Using student-written questions, students will interview an elderly community member and compose an oral history based on the facts gathered in the interview.

Puppet Show/Skit

Students will perform a show based on local history. They can use an interview they conducted or an oral history from the Llano Grande database as a resource. The show can be performed in class, at a parent-teacher meeting, etc.

Thank You Letter

Students will write a thank you letter to the person(s) they interviewed using the components of the friendly letter.

Mural/Collage

Students will bring the interviews and oral histories to life through art, creating visual representations of various aspects and events found in the stories.

Edcouch-Elsa High School student recreates the life of an oral history interviewee.

Map

Students will create a map that represents a selected route in their community (i.e. from home to school, etc.). Other routes that can be mapped and explored are particular routes that each student's family has traveled. For example, students could map their family's journey form Mexico to the Delta Area, from the Delta Area to Michigan, from the Delta Area to a vacation destination, etc. In addition, students can examine the geographical aspects, such as climate and vegetation, of each route.

Newsletter/Newspaper

Teachers will send out a letter at the beginning of the project to encourage parental involvement. Students will be assigned parts of the newsletter to write up during the unit under study. Some examples of the sections include the following: front page, classifieds, local heroes (i.e. firefighters, police, veterans, high school students, people who serve the community), book reviews, pictures, poetry (bilingual), stories, word search, and cartoons.

Radio Play

Students can role-play disc jockeys, newscasters, or talk show hosts, covering certain aspects of an oral history. These plays can be acted out over the intercom system, at a parent-teacher meeting, etc.

Studying Our Surroundings

In teams, students will identify and describe all the plant and animal life in an area designated by the teacher, perhaps one half of a city block near the school. Students will make careful observations of each item and discuss the importance of each to the area. Students will also consider the impact of the loss of one or more of the living organisms on the area. This research can be presented in a variety of formats: charts, tables, video, collages, or reports. In addition, this information can serve as a basis for class discussions, further research, and written summaries.

Counting Our Area

Students will practice basic arithmetic by counting items in their community. Teachers will select certain items from the area for counting and comparison (i.e. how many churches, how many stores, etc.). These exercises can be the basis for the construction of charts and counting games using the layout of the local area.

II. Secondary Plan

Comparing the Past and Present *(ongoing)*

Students will retrieve information about their parents'/grandparents' past and life experiences using different mediums: student-written questionnaire, oral interview, or writing sample of the interviewee. The questions can focus on a specific topic (i.e. the first day of school, Christmas, Easter, etc.). Students will compose one paragraph using the information gathered and then write another paragraph about their own experience. This activity can be continued throughout the year so that the paragraphs can be compiled into a book for display, published as a classroom journal, or published in the *Llano Grande Journal.*

Students report on Delta Area

Edcouch-Elsa High School student presents her oral history findings in a public forum.

Journal

Using a similar research method as a basis, students will adopt a character's point of view and write about a day in the life of the character. Students will be encouraged to interview people outside their family, perhaps a neighbor, distant relative, etc.

Story Map

Students will outline one of the interviews from the Llano Grande database or one of the interviews they have conducted using a story map. A typical story map has the following elements (subject to change according to teacher's discretion):

Characters **Setting**

Pictures

Problem **Solution**

The "Pictures" section can include drawings, computer graphics, magazine cutouts, or poems. Students can even use PowerPoint software to create and present their story maps. In addition, the story map can serve as a basis for a written summary and class discussion.

Timeline *(ongoing)*

Students will display various events that were gathered from their interviews on a timeline in the sequence that they occurred in the story. The timeline can be collective or individual and will be constructed so as to allow for mobility and flexibility.

Local laborer working the fields.

Thank You Letter

Students will write a thank you letter to the person(s) they interviewed using the components of an informal letter.

Newsletter/Newspaper

Teachers can send out a letter at the beginning of the project to encourage parental involvement. Students will be assigned different parts of the newsletter to write. Some examples of the sections include the following: front page, classifieds, local heroes (i.e. firefighters, police, veterans, high school students, people who serve the community), book reviews, pictures, poetry (bilingual), stories, word search, and cartoons. Each newsletter will focus on a different local theme. An online version of the newsletter can be developed in addition to the paper version.

Puppet Show/Skit

Students will perform a show based on local themes. The show can be performed in class, at a parent-teacher meeting, etc. Students will be encouraged to use different forms of media, including music, videos, computer graphics, PowerPoint, or other technological equipment.

Mural/Collage

Students will bring the interviews and oral histories to life through art, creating visual representations of various aspects and events found in the stories. Students will be encouraged to use various forms of media, including music, videos, computer graphics, PowerPoint, or other technological equipment. These representations can be displayed at various places around the community.

Map

Students will create a map that traces the migration and immigration patterns, past and present, of their families. Students can focus on the geographical features of the various areas traveled by their families. Students will again be encouraged to use a multi-media format. These maps can serve as a springboard for discussion.

Role Play

Students can role-play disc jockeys, newscasters, or talk show hosts, commenting on scenes or events from the oral histories. These plays can be acted out over the intercom system or filmed and shown over the school's television monitors.

Students perform at the Llano Grande Cultural Arts Festival.

Research Project

Students will select a topic on which to do in-depth research. They will utilize interviews and other secondary material as sources. The culmination of each student's research will not be limited to the standard research paper. Students will be encouraged to use a multi-media format, including music, film, and/or other visual aids, to present their findings and conclusions to the class or community. In addition, these papers and presentations can serve as a springboard for class discussions and further research.

"AKULA WEBSITE STORY"

NAME OF RURAL CHALLENGE SITE: *Alaska Rural Challenge/Rural Systemic Initiative*

ADDRESS: General Delivery, Kasigluk
TOWN: Kasigluk
STATE: Alaska
ZIP: 99609
TELEPHONE: (907) 477-6615
FAX: (907) 477-6715
WEBSITE: http://www.ankn.uaf.edu/akula/

CONTACTS:
- Levi Hoover, Teacher, Community Member
- Tari Lindquist, Teacher, English Language

GRADE LEVEL(S): K-12

LENGTH OF TIME: one academic year

DESCRIPTION[31]

In the spring of 1997, students at the Akula School in the Lower Kuskokwim School District in Alaska, with support from the faculty, administration, and community started a project to create a World Wide Website. The website was envisioned as an opportunity to celebrate the progress of the school's Yup'ik Studies Program, as well as a celebration of the entire school and community. At the project's inception the technical skills of most faculty were at average levels, many were proficient in word processing, e-mail, desktop publishing and basic Internet searching. The students at Akula had some technical skills but were highly motivated by a strong interest to integrate their interest in technology with their cultural heritage.

Scott Christian, a research associate with the Annenberg Rural Challenge, helped the students develop the website and came up with a draft plan for the structure of the site. With input from students and other community members, the plan was presented to the community by Mr. Levi Hoover, a leader in the community and fluent in the Yup'ik language. The plan was well received and a strategy for the website was conceived and implemented.

[31] Adapted from the work of Scott Christian, Research Associate, Rural Challenge Research and Evaluation Program.

Teams of 8th graders worked on the site every Friday and were trained to use the multi-media lab at Akula to produce the website. Eventually, students and teachers from across the district will be invited to the Akula lab for training in a variety of software applications, including the Yup'ik curriculum development process. The Akula Rural Challenge and the Lower Kuskokwim School District will provide the training. The plan for the development of the site included several steps. First, it was decided that the site would begin in Yup'ik because it is the primary language of the village, and everyone wanted to make a clear statement about the preeminence of Yup'ik in the school and the village. Instead of the three original pathways or categories: Curriculum/School Program, Community and Lower Kuskokwim School District, the students decided to organize the site into three overlapping, linked areas. These areas included the Yup'ik Studies Program, Academics and Athletics and the Community of Kasigluk. The following is the sketch that was used to actually begin the work. The goal is for each pathway, and each page, to eventually exist in both English and Yup'ik.

YUP'IK STUDIES PROGRAM

Eskimo Dancing
Yup'ik Letters
Elder's Conference
Yup'ik Curriculum K-12 Thematic Units
Student Arts and Crafts
Yup'ik Values
Yup'ik Science
Yup'ik Language

ACADEMICS AND ATHLETICS

Speech contest
Poetry
Student Writing
Art
Elementary
Jr. High
High School
Basketball
Cross Country Running
Native Youth Olympics
Staff and Students

COMMUNITY OF KASIGLUK

Demographics
Subsistence
Map of Kasigluk
Photos of the village and the area
Elders
Religion

Currently, some of the information is only in Yup'ik, some in English and some in both languages. Since all of the high school students are required to take Yup'ik Studies for all four years, there is an excellent opportunity to do much of the translation work there. The negotiation between and translation of the two languages is one of the most interesting and complex aspects of the project. Scott Christian describes the project in more detail:

> *At one point there are seven adults and three students huddled around the computer for nearly an hour, discussing which Yup'ik word would be best to describe the Anglo sense of 'Yup'ik Values.' The term they came up with 'Qanruyutet,' roughly translates to Yup'ik ways of thinking and believing -- or Yup'ik ways of living -- depending on who you talk to.*
>
> *I was simply amazed by the students. It was a rare moment to see a student working alone during the week. Typically, there would be two, three or four students huddled around a computer, or pile of writing or photos. I didn't realize until I talked to John (a teacher in the school), that there were mainstreamed special education students in the room, and students with very low proficiency in English. Throughout the process, students were continually asking each other's opinions. Most of these conversations were in Yup'ik although they occasionally spoke in English also. We were all amazed with how quickly the students mastered the software: Page Mill and Photoshop. Even though they had never used the software, by the end of the first day, they were experimenting, and teaching me new applications of the programs. I think it was great for the Akula teachers to see that they didn't have to be masters of the technology, that if they could set up real tasks for kids, they could learn right along with them. It was also symbolic of the philosophy and values of the school and the community to see the students select the photos of the Elders as the first photos to be scanned, before the basketball [scans] or any others. This experience reaffirmed my faith in progressive models of education where students are engaged in relevant, meaningful, collaborative work and the adults are coaches, facilitators, advisors. This project was a living example of students constructing meaning, building connections between their learning and each other, negotiating the boundaries of two languages, two cultures, two very different ways of understanding and living.*
>
> *On the last day of the first week, Levi's mother -- an elderly Yup'ik woman--came in and watched the students for a couple of hours. She didn't say a word. She moved from station to station, watching the students working. As she left, she said a long Yup'ik word to Charles Issacs. I asked him what the word meant, and he said it didn't translate. I pushed him and asked him to try his best. He said that the word roughly translated to 'These kids are hot stuff.' And they are!*

What follows is a reproduction of some of the work of the Akula students and community members. Feel free to access it yourself to update the progress of the Akula project, the basketball team, or other information. Do it also to appreciate these photos in color.

Yugtunelitnauryaraqelitnaurvigmi

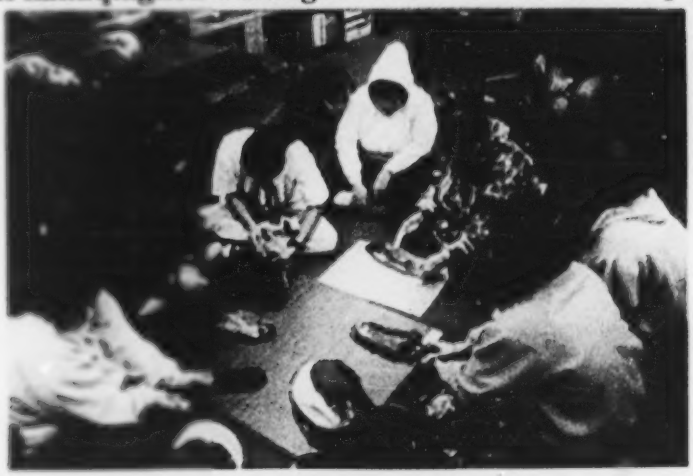
Calicayarait

Kasiglurmiut

English

To send questions or comments, please contact Akula Elitnaurvik

Calugcilriit kanaqlagnek Ussungam ukut elitnaurat ciuliqagtai.



AKULA ELITNAURVIK

ESKIMO DANCERS

124

Cangarraq B.

Qariitarvik 21, 1997

Akwaugaq wii Cangarraq N-aaq-llu.

Qariitarvik 22,1997

Akwaugaq wii Sak'aq-llu kiimenuk kangkiilruukuk nanvami kangkiirarlunuk utertellruukuk.

Qariitarvik 27,1997

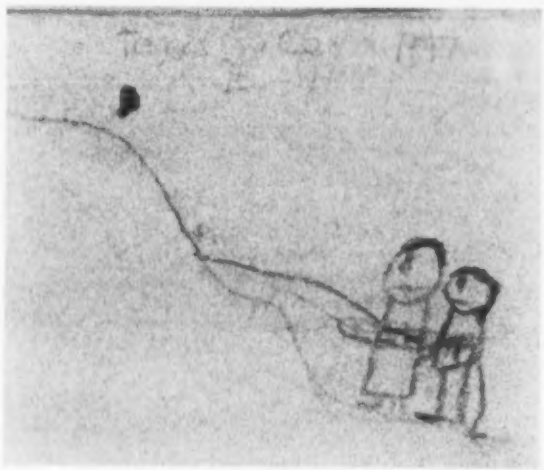
Akwaugaq wii dad-iputllu cikucilruukuk cikucirarlunuk utertelruukuk tua-i-llu nerlunuk yaqulegmek.

Qariitarvik 29, 1997

Akwaugaq wii Angacaq-llu calluguallrukuk calluguararlunuk nerellrukuk moose miitamek.

Qariitarvik 28,1997

Akwaugaq wii Girly ayautelruaqa ikamrakun ayagauterarluku ikamrakun utertellrukuk.



Academics and Athletics

The graduating class of 1992-93

Speech Contest

Poetry

Student Writing

Art

Elementary

Junior High

High School

Basketball

Cross Country Running

Native Youth Olympics

Staff and Students

Yugtun

Elementary

Primary

Transition Grade

Third and Fourth Grades

Fifth and Sixth Graders Student Profiles

First and second grade classes before picking berries.

Drawing pictures of classroom rules.

Time for E.S.L.! First Grade students wear glasses when they speak English.

These journal entries and drawings were created by Timothy Beaver.

Kassiglurmiut

Yugtutacia

Nerangnaqsaraq

Kassiglurmiut qaill' nunautellrat

Tarenrautet nunamteni

Tegganret

Agayumaciq

Wassillie Berlin-Uqsungaq,Irvin Brink-Cagluaq, Kalila Slim-Kakgailnguq, Elia Tinker-

Qaluksuk, Levi Hoover-Ap'alluk

Monthly, there are community meetings where Elders, Staff, and Community Organizations share information for Yup'ik Studies Program.

Tegganret, Elitnauristet, cali caliviit-llu quyurtelartut Yugtun Elitnauritkanek caliluteng

Basketball

Fox Power! You're born a fox.... you'll die a fox.

This is the Akula boys basketball team

Front from left to right Curtis Kassel, Jon Brink, Patrick Sergie, Peter Nicholas

Back row from left to right Coach John Lindquist, Nathaniel Beaver, Ross Nichoas, Dawson, Hoover, Michael Nicholas

Basketball

Most students in the village of Kasigluk love the game of basketball. High school girls and boys developed a fetish for basketball when they were young children. Most dream of playing in the NBA but the chances are pretty slim since the tallest students would be considered guards in the NBA when they are considered towers in the Y-K Delta. The no-look passes are rare and so are the slam dunks. Only a few people are able to "slamma-jamma" and that is very unlikely. Here in Kasigluk, it would be some sort of a miracle to see a person slam dunk in the villages because of the limited height that the basketball players have.

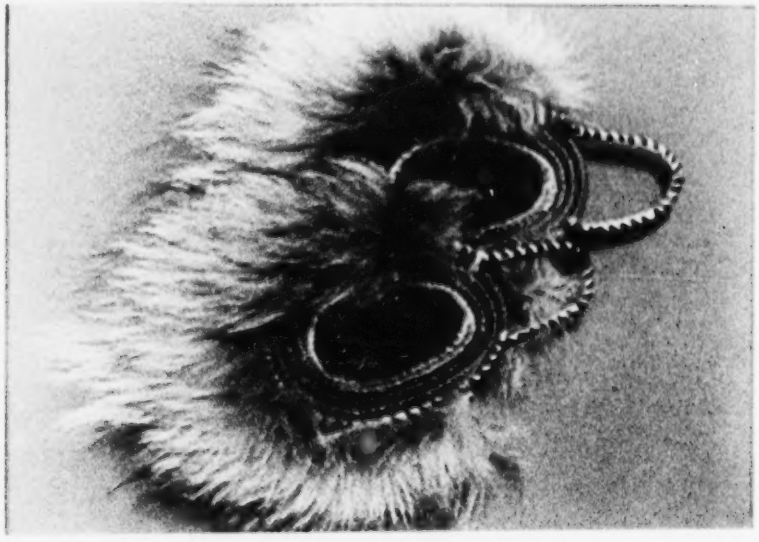
The high school girls have had a great season. They were pretty good but they will get better because in the school year '97-'98, they were composed of five freshman, two juniors, and one senior. The shortest player came at 4'11" and the tallest 5'8." In the league tournament, they lost to the opposing team and were unable to advance to the district tournament held in Bethel, AK.

The school year '97-'98 was just great for the boys. The shortest player came in at 5'2" and the tallest at 5'11". With two freshman, one sophomore, three juniors, and one senior, they were able to advance to the district tournament after taking third place in the league tournament. The Akula Tundra Fox boys were considered the "under-dogs" but they happened to upset the opposing team. After the upset, they also upset the next opposing team after coming back to win by two points from an eighteen point deficit. The championship game was right in their hands but they lost by twelve points to the number one-seeded team.

The teams have steadily been improving and have been showing signs of life. This is great news for the Akula Tundra Foxes.

Art

These maklaks were made by our elders. This picture was taken when it was native dress up day. There are many different kinds of maklaks, maklaks are made of animal hide, skin, fur, and beads.



These are dance fans made by our elders. These dance fans are made from a caribou tail and the rest with grass.

"GUIDELINES FOR PROJECT PROPOSALS"

NAME OF RURAL CHALLENGE SITE: *North Coast Rural Challenge Network*

SCHOOL: Mendocino Unified School District
ADDRESS: PO Box 1154
TOWN: Mendocino
STATE: California
ZIP: 95460
TELEPHONE: 707-937-5868
FAX: 707-937-0714
WEBSITE: http://www.ncrcn.org/hmtl

CONTACT PEOPLE:

- Ken Matheson, Superintendent
- Mitch Mendosa, ARC Coordinator for Anderson Valley
- Binet Payne, ARC Coordinator for Laytonville
- Ann Slattery, ARC Coordinator for Point Arena
- Deena Zarlin, ARC Coordinator for Mendocino

DESCRIPTION

What follows are the project guidelines from the North Coast Rural Challenge Network. We have included both the proposal guidelines and three different proposals that were submitted. Note that the individual projects cover a wide range of subject areas, grade levels and time spans. They also have different origins regarding the principal initiators: teachers, community members and students respectively.

By including these documents we hope to demonstrate some of the breadth and the range of fieldwork. Remember that this work is all contained within a single project. Projecting this diversity in ideas and environments outward to the thirty-three projects in several hundred sites, gives you some idea of the vast array of ideas and interpretations of rural life, place, and education. The proposals also demonstrate the variety of interpretations of the Rural Challenge goals and the ecological and cultural communities these goals are applied to. Work in the field is constantly defining, interpreting and developing the core values of the Rural Challenge.

North Coast Rural Challenge Proposal Guidelines

In schools, and especially in those of rural communities, educational changes must be intricately tied to economic revitalization and environmental sustainability. The North Coast Rural Challenge Network will serve as an example of how school reform can contribute to, and even act as a catalyst for, economic revitalization and stewardship of the environment while simultaneously keeping the unique needs of each student as the driving force for all activity. In the network model we are proposing, students and schools become the heart of healthy, evolving, adaptable communities.

Please address the four sections below in your project proposal. The bullets are there to provide guidelines for thinking about the project. You don't need to address each one separately, and some might not be applicable to your work at this time. Contact a coordinator for assistance in writing up your proposal.

1. The Project

Applicant and/or teacher sponsor:

Project Title:

Student Groups:

Teacher:

Community Members:

Partnerships Involved:

Number of Students Affected:

Length of Project:

Brief Description of the Project (2 - 3 sentences):

2. Connections

*How does the project connect with our theme of people, history, and place?

*How does the project interact with the community?

*How will you evaluate or assess the community impact?

*How does the project connect with other NCRCN members/sites?

3. Student Learning

*How will the project improve student learning?

*How will you evaluate or assess what students have learned? What kind of data will you collect? Will you have an Action Research question? How will students be involved in the evaluation of the project?

*How does the project invite student planning/student choice?

*How will students share their project and learning with others at their own site, other sites, or within the community?

*Will your project have a service learning component? If so, please describe.

4. Support

*What kind of support would you like from the coordinator/TSA?

*What kinds of funds will you need for the project? (staff development, release time for planning, transportation, materials) Please supply a general budget.

*What other sources might provide additional funding for the project?

NCRCN Project Proposal

Plant Propagation with Jughandle Farm

1. The Project

Applicant and/or teacher sponsor:

4th and 5th grade teachers: Antoinette L. Ryan
Spencer Brooks
Scott Fraser

Project Title:

Plant Propagation with Jughandle Farm

Student Groups:

Teacher:

Community Members:

Partnerships Involved:

4th and 5th grade students
Americorps Watershed Project
Jughandle Farm
Laytonville School
Anderson Valley School
Ann Slattery
Marcia Connelly

Number of Students Affected:

78

Length of Project:

1997/98 School Year

Brief Description of the Project (2 - 3 sentences):

Students will learn to propagate native plants from seeds and cuttings. Each class will take a field trip to Jughandle Farm to learn techniques and observe the gardens. Students will take this information back to their watershed where they will be involved in native plant propagation in the schoolyard, community, and watershed restoration projects.

2. Connections

***How does the project connect with our theme of people, history, and place?**

The beginning of this project will be a learning process that will lead to habitat restoration, educational gardens, and community and school site landscaping with native plants.

Once the students have learned the plant propagation techniques at Jughandle Farm, students will teach other Arena Elementary students what they have learned.

The project addresses the theme of people, place, and history through its emphasis in learning the natural and social history of the cycles of our watershed. Students will involve the community in the project through plant sales and tours of the schoolyard and greenhouse where their projects have been implemented. Community members will also be utilized as resources to share their local knowledge and experience with the students. To connect with other NCRCN sites, students will combine efforts and exchange knowledge with schools involved in native plant projects in Laytonville and Anderson Valley.

To promote student planning and choice in the project, students will inventory the native plants at their school site, determine the most appropriate native plants for their schoolyard, and locate the most beneficial sites for the plantings.

***How does the project interact with the community?**

As above.

***How will you evaluate or assess the community impact?**

As above.

***How does the project connect with other NCRCN members/sites?**

As above.

3. Student Learning

***How will the project improve student learning?**

This project will improve student learning through providing hands-on experience in native plant propagation for their watershed. They will learn how to care for the plants, record data, and share their knowledge with other students. They will also learn skills in working as a group.

Students will keep journals of their learning process and data recordings. They will be evaluated on their cooperative group work, journal writing, sharing knowledge with others, and organizational skills. Students will be involved in watershed projects which require cutting, seed gathering, and native plant restoration. The progress of students' service learning and reflection will be evident in their journals, notes, photos, and class discussions. These tools will then be shared with other classes on site, as well as other NCRCN schools.

This project will impact the community in the following ways: site beautification and restoration, development of stronger school/community relationships, and encouragement of more effective communication skills among students. In summary, this project provides a place

for school and community members to participate together in the stewardship of the environment through creating an awareness of the vital role that native plants play in the life cycles of our watershed.

***How will you evaluate or assess what students have learned? What kind of data will you collect? Will you have an Action Research question? How will students be involved in the evaluation of the project?**

As above.

***How does the project invite student planning/student choice?**

As above.

***How will students share their project and learning with others at their own site, other sites, or within the community?**

As above.

***Will your project have a service learning component? If so, please describe.**

As above.

4. Support

***What kind of support would you like from the coordinator/TSA?**

Necessary support from the Teacher on Special Assignment will include: coordinating the field trip to Jughandle Farm, assistance in coordinating small group field trips to the watershed, providing support for student teaching projects at the school.

***What kinds of funds will you need for the project? (staff development, release time for planning, transportation, materials) Please supply a general budget.**

Staff resource (from Jughandle Farm):	2 hours at $15.00/hour x 3 classes =	$ 90
Transportation:	$100 x 3 classes =	$300
Supplies (cans, soils, amendments):	$20 x 3 classes =	$ 60
Total:		$450

***What other sources might provide additional funding for the project?**

NCRCN Project Proposal

Body Image and Self-Esteem

1. The Project

Applicant and/or teacher sponsor:

Alice O'Rourke, Frances Marvel, Starlene Hewitt, and Amara Stough

Project Title:

Body Image and Self-Esteem

Student Groups:

Elementary School, Junior High School, High School

Teacher:

Steve Jurist

Community Members:

Health Professionals
Violence Prevention Initiative
Mendocino Youth Project

Partnerships Involved:

R.C.M.S.

Number of Students Affected:

2,500

Length of Project:

97/98 School Year

Brief Description of the Project (2 - 3 sentences):

The correlation between self-esteem and body image result from a cultural standard of feminine beauty. We will work to combat these unrealistic and unhealthy standards by visiting classes and giving seminars on the topic which will give people a healthier outlook about themselves and their eating habits.

2. Connections

***How does the project connect with our theme of people, history, and place?**

Over time, the ideal body image has changed. We want to evaluate people on what they think the ideal body image is, then compare it to the ideal image in magazines. Through this we can determine most likely that women do not have to be as skinny as they think they should be.

***How does the project interact with the community?**

We will share our information with the community, and especially with students to raise their self-esteem. By raising self-esteem, we hope that the community will live a healthier life, and we will bring an awareness about the dangers of anorexia and bulimia.

***How will you evaluate or assess the community impact?**

We will ask the subjects to fill out an evaluation form, and hopefully, other students will continue our project after we graduate, to insure that the learning continues.

***How does the project connect with other NCRCN members/sites?**

We plan to use E-Mail and teleconferencing in communicating with other students. We also would like to give presentations in person, which would include skits on self-esteem and body image.

3. Student Learning

***How will the project improve student learning?**

Through our research we have found that when people have high self-esteem, their quality of school work improves.

***How will you evaluate or assess what students have learned? What kind of data will you collect? Will you have an Action Research question? How will students be involved in the evaluation of the project?**

We will have a survey and ask the subjects to evaluate us on a scale of 1 to 5. Our Action Research question is: What is the relationship between body image and self-esteem? We hope to find results to our question by finding subjects and having them evaluate themselves, as well as their eating habits. We plan to take pictures on the computer of the individual subjects. Then have each person adjust their body image on the computer to how they do look compared to their ideal body image. Students will be involved in our project by not only being evaluated, by also we will be sharing the information that we have found out with as many people as possible. During our research we plan that the subjects results will be anonymous.

***How does the project invite student planning/student choice?**

The students will have a broader understanding of self-esteem, body image, and eating disorders, and they will have the choice of leading a healthier life.

***How will students share their project and learning with others at their own site, other sites, or within the community?**

We will share what we have learned, and hopefully our audiences will absorb the information and pass it along to others to teach about body image compared to self-esteem.

***Will your project have a service learning component? If so, please describe.**

We plan to be involved with Redwood Coast Medical Services, and attend their weight watcher group, and participate in the program, and possibly add our own input and knowledge.

4. Support

***What kind of support would you like from the coordinator/TSA?**

Hopefully, Ann Slattery will help us contact the people needed that have higher education to assist us, and as well provide the transportation needed.

***What kinds of funds will you need for the project? (staff development, release time for planning, transportation, materials) Please supply a general budget.**

Our estimation is $200.00.

Transportation	$100.00
Software	$ 60.00
Office Supplies	$ 20.00
Scale	$ 15.00
Measuring Tapes	$ 5.00

*These are all estimated values.

***What other sources might provide additional funding for the project?**

The local health program which includes a weight watchers program, and also a group that supports women which is called Soroptimist.

NCRCN Project Proposal

Handbook of South Mendocino County Beaches

1. The Project

Applicant and/or teacher sponsor:

Amelia Abrojena
Marina Cochran-Keith
Amanda Woodward
Advanced Science Teacher Steve Jurist

Project Title:

Handbook of South Mendocino County Beaches

Student Groups:

Initial project is a collaboration of high school students from Point Arena and Mendocino. The finished product will be presented to various student groups from different schools in our area.

Teacher:

Steve Jurist

Community Members:

The Point Arena harbormaster, Bill Pettigrew
A local geologist
Various citizens, including: surfers, fishermen, divers, historians, Game Wardens, etc.

Partnerships Involved:

Local Chamber of Commerce
Fish & Game

Number of Students Affected:

2,000

Length of Project:

Seven to Nine Months

Brief Description of the Project (2 - 3 sentences):

The handbook will be both a scientific and recreational resource, containing information about selected local beaches that will include: scientific and geological measurements, diagrams and facts, historical events, an identification section for sea life, recreational information, ocean conservation information, maps, photos, drawings, etc. In addition, our project includes presentations to many schools and organizations, as well as a web site that will be developed in conjunction with the handbook.

2. Connections

***How does the project connect with our theme of people, history, and place?**

Our handbook will promote awareness about local history and ocean resources. By distributing this information to the community and visitors from around the world, we hope to educate people and therefore create respect and an increased involvement in the preservation of our local beaches.

The finished handbook will be presented and distributed throughout the community by members of our group. We will present to many local elementary schools, with a goal to educate the younger children of our community about the importance of taking care of our beaches and preserving local sea life.

The impact of the project on the community will be measured in many ways. The number of handbooks sold or distributed will reflect community interest, as well as feedback from students we present to, and also expect to hear direct feedback from members in our community pertaining to the success of our project.

***How does the project interact with the community?**

As above.

***How will you evaluate or assess the community impact?**

As above.

***How does the project connect with other NCRCN members/sites?**

As above.

3. Student Learning

***How will the project improve student learning?**

***How will you evaluate or assess what students have learned? What kind of data will you collect? Will you have an Action Research question? How will students be involved in the evaluation of the project?**

***How does the project invite student planning/student choice?**

***How will students share their project and learning with others at their own site, other sites, or within the community?**

***Will your project have a service learning component? If so, please describe.**

Our project will be a valuable educational resource for fellow and younger students, as well as an example of students getting involved in the community and taking an interest in preserving local natural resources. We feel that our influence on the younger children in our community will be substantial; we want to be positive role models and set a precedent for

future science students at Point Arena, and hopefully other schools as well. We will be able to assess our impact on other students simply by observing them and receiving feedback. Since we will be working directly with groups of high school and elementary students during the information gathering process, we will be able to judge just how much interest we are generating among our peers and the younger children involved. One major way we will generate interest is by including various student groups in the gathering of information for our project. We will be working directly with elementary school and high school students at each or most of the beaches we will be outlining. They will help us observe, measure, and assess beaches. Every student involved will be acknowledged in the handbook for their contribution to both the finished product, and the ultimate goal of involving more students in the community issues and activities.

4. Support

***What kind of support would you like from the coordinator/TSA?**

***What kinds of funds will you need for the project? (staff development, release time for planning, transportation, materials) Please supply a general budget.**

***What other sources might provide additional funding for the project?**

We will need assistance from our project coordinator in arranging field trips with other students to different beaches. We will also need funding to pay for the costs of publishing the handbook. Here are the estimated costs for publishing:

80 pages

8 1/2" x 11"

With cover

$600 - $700 to cover copying, binding, and front cover.

We also may be able to cover costs by selling the finished product at various local businesses and by ourselves. However, we will need funding before the handbook is even finished to have it published.

"RURAL CHARTER SCHOOL"

NAME OF RURAL CHALLENGE SITE: *Center for School Change*

SCHOOL: Minnesota New Country School
ADDRESS: 210 Main St. PO Box 488
TOWN: Henderson
STATE: Minnesota
ZIP: 56044-0488
TELEPHONE: (507)-248-3353
FAX: (507) 248-3604

CONTACT PEOPLE:

- John Schultz, Facilitator
- Beth Robelia, Science Instructor
- Cindy Reinitz, Science Instructor
- Kim Borwege, Founder and Instructor
- Nancy Miller, Founder and Instructor
- Betsy Kroon, Student

ACADEMIC CONTENT AREA: This charter school covers all academic content with a concentration in Computer Science

GRADE LEVEL(S): 7th-12th

LENGTH OF TIME: full academic year

DESCRIPTION

The Minnesota New Country School (MNCS) is located in the Le Sueur valley about an hour south of Minneapolis. The idea for the school was inspired when two rural towns, Le Sueur and Henderson, decided to consolidate their schools. After years of trying to implement changes at the secondary level, Henderson teachers Kim Borwege and Nancy Miller enlisted a group of parents and approached the local school board about establishing a middle/high school charter. They wanted a school where students demonstrated strong problem solving skills, where the students made extensive use of the community, and balanced their field experience with critical use of computers and other technology. In 1994, the school board eventually approved the charter with the proviso that the charter school could not cost the district money, even though a substantial number of district students were planning to attend. Today the school

enrolls 95 students in grades 7 through 12 who travel as far as fifty miles to attend. The innovative structure is especially attractive to parents who have rejected traditional public schools or have been teaching their children at home

Academic Content and Evaluation:

The MNCS mission states that each student should master a **limited** number of skills and areas of knowledge, striving for great depth rather than superficial breadth. Students in the secondary program must demonstrate competence in language and elementary mathematics before they are admitted. Once the student commits to the program, he/she must demonstrate mastery of an integrated subject field such as:

- Reading and Interpreting
- Writing and Speaking
- The Arts – performance, interpretation and/or creation in music, theater, dance, media, literary, visual, or technology
- Mathematics
- Inquiry
- Sciences
- People and Cultures
- Decision-Making
- Managing Resources
- Languages

Evaluation is an ongoing and personalized process between each student and his/her advisor. The student must maintain a daily journal which documents the tasks she is working on, her own timeline for completion of projects as well as her reflections on the learning process. Each entry is read and commented on by the student's advisor.

Every other month, students are required to present their work before their peers, teachers, parents, and interested community members. Presentation Night is held in a community center and each student's presentation is videotaped. Later, the student and his advisor assess the content and speaking abilities exhibited in the presentation and identify presentation skills that still need attention.

Facilities:

In 1994 the Minnesota New Country School moved into three abandoned storefronts in downtown Le Sueur. They invested over a half a million dollars in computer and internet technology that provides one computer for every two students. The school building is open at 8:00 a.m. and does not close until 5:30 or 6:00 p.m. The school is also open on Monday evenings for parent, student and staff use. The school contracts with a local cafe to provide for lunch.

One striking feature of MNCS is the fact that on any given day more than half the students will NOT be in the building. The staff and students are actively engaged in field research in the community, and the downtown location has stimulated a number of student-business internships at places like the local radio station and chamber of commerce.

Administration:

Flexibility is the word that describes every aspect of the school. There is no superintendent, or principal. The administrative responsibilities are shared among teachers and staff, but more recently John Schultz, an independent management consultant who founded the school, has taken on part-time leadership duties. He is the only non-teaching member of the staff. The money saved on hiring a full-time administrator has been redirected into technology purchases, and offering higher-than-average salaries to the faculty.

Instructional Staff

The teaching staff at MNCS is required to collaborate on policy and, as with other charter schools, the teachers develop their own working conditions which do not have to conform to the agreements reached by the local school district and its teacher union. Each faculty member also develops a personal growth plan that is reviewed by a board evaluation committee. The teachers have found the feedback valuable for their own professional growth, much as the students appreciate a friendly critique of their efforts.

Instruction is interactive and personalized and teachers are responsible for no more than 16 students. The school year begins in August with the teachers holding individual conferences with each student and her or his parents. The August meetings cover the work the student has done in previous years and reviews the priorities the student and parent have set for the coming year. Some of the questions that are central to this discussion include:

- What major activities did the student do during the summer?
- What did the family do together?
- What major family changes, if any, happened over the summer?
- What are the parents' and the student's priorities for the coming year?

- What kinds of projects does the student want to work on each semester?
- How will the family help out at the school?
- How often and in what form will the school report to the parent about the student?

The emphasis on utilizing the community as an expanded learning environment for MNCS students has produced a variety of impressive projects. One student project, in particular, has received worldwide attention. In August 1995, a class of 12 to 15 year old science students was doing a routine exploration of a local marsh. The students found dozens of frogs that had some intriguing deformities; some had not developed eyes, others were missing legs and a few had multiple legs. The students, speculating that the deformities might be an indication of water or air pollution, alerted the Minnesota Pollution Control Agency and the University of Minnesota to their findings. The discovery eventually resulted in the Minnesota legislature appropriating $151,000 to investigate the frogs in Henderson as well as survey the health of frogs in other parts of the state. The school's administrator states that this discovery would never have been made had the students not been outside the classroom researching their local environment.

"A SCHOOL AND COMMUNITY IN THE PROCESS OF DEEPER INTEGRATION"

NAME OF RURAL CHALLENGE SITE: *Program for Rural School and Community Renewal*

SCHOOL: Howard High School
ADDRESS: 500 North Section Line, PO Box 69
TOWN: Howard
STATE: South Dakota
ZIP: 57349
PHONE: (605) 772-5515
FAX: (605) 772-5516
WEBSITE: www. Howardsd.com/schools.htm

CONTACT PEOPLE:

- Randy Parry, Rural Challenge Coordinator and Teacher
- Mary Stangohr, English and Journalism Teacher
- Craig Mock, Principal
- Mike Knutson, Social Studies Teacher
- Kay Becker, Art Teacher

ACADEMIC CONTENT AREA: Interdisciplinary

GRADE LEVEL(S): 9th-12th

DESCRIPTION

It started as a classroom economic inquiry into the spending patterns of members of the community and grew into a more comprehensively integrated approach to thinking about and acting upon real issues the citizens of Miner County, South Dakota face today. The survey results compiled by Future Business Leaders of America students indicated that too much local money was being spent outside the county, thus compromising the local tax base and, ultimately, contributing to the demise of Miner County businesses. Through Community Vision Meetings, initially held to consider the implications of local versus non-local spending, citizens began to grapple with other fundamental questions inherent in the social, cultural, and historical setting in which they live. As students became researchers and analysts of local circumstances as well as on-going learners and teachers within their community, the level of democratic activism was enlarged. These students helped the citizens of Miner County realize that they had the power to make decisions, to act, and help determine the fate of their community.

We're really starting to look closely at our community and where it is going and at first it was kind of scary to think that we'd just sit back and watch it die, but it's exciting to watch the movement of the kids when they realize that it doesn't have to be this way. They realize that they can take charge of their own education and [the town's] direction. -- Mary Stangohr, teacher, Howard High School

What has happened in Howard, South Dakota is not an anomaly in Rural Challenge sites. There are other sites in which various community-school interactions foster vital discussion of issues, collective research, and community action. In Howard, however, the combination of a supportive superintendent, a principal open to allowing students and teachers to leave the confines of the school building, and energetic, creative teachers of different disciplines who wish to make learning relevant to students by engaging issues that are related to their lives, has enabled powerful interdisciplinary educational experiences to evolve for all members of the community.

The economic survey work conducted by Randy Parry's Future Business Leaders of America students was extended and supplemented by work done in Mary Stanghor's 11th grade English class. Stangohr's intentional curriculum design around Osha Gray Davidson's *Broken Heartland* allowed students a historical, social and national economic perspective of the plight of rural farms in America and made a meaningful connection to their lives and that of their families.

Because land is so central to a farming existence, Stangohr introduced the *Broken Heartland* unit by looking at the land, the history of the land, the impact of the Native American, the agrarian movement, and the industrial influence on the land.[32] The necessity of learning about the land meant "We were outside everyday. We held class outside in the grass. We wrote haikus and poems about the leaves and plants we found. We dried and pressed plants using Matisse as an inspiration." Students moved from this micro approach of looking at the land to a more macrocosmic perspective as they examined what had happened to the larger landscape, the original eight communities that had, at one time, made up Miner County.

I was a little bit concerned [at first] seeing kids going out during school hours, but the projects that have been done, the reality that they're not only learning but learning about their environment and their community and the emotion that that [fosters] is intriguing. When things are dear to your heart, [learning] has a lot more emphasis. -- Craig Mock, Principal, Howard High School

Stangohr took students on excursions to what were once bustling towns: "We have [abandoned, dying] towns in our community four miles away. It's really easy to go and look around and have members of the community who know about it and can write and speak about it

[32] The questions and context for the land-based part of the curriculum were inspired by Wes Jackson's Land Institute in Kansas. Stangohr attended a curriculum workshop there and came back revitalized with ideas to adapt to her land, place and community.

firsthand." A local historian and educator, Tom Kilian, shared with her students the tenacity of the people who settled the area.

> *Some of the most harrowing tales of hardship on the frontier have come out of the Norwegian settlement. They arrived in the fall of the year and had time only to build one sod house when the epic Blizzard of 1880 struck. The entire group was compelled to crowd in a 14 x 16 foot space to seek shelter from the frigid tempest. They were confined there together for two days and nights. In that year, no train reached the railhead at Madison from February until June. And, the trains were their only source of supply. They had to make do. The Blizzards of "80" and "88" were converted into legend. The winters of that period were generally very severe. Snowdrifts of 10 to 20 feet high were common, with very low temperatures and bitter winds. In the following winter, a group of these people ran short of food and there was no place to buy any. They found a farmer in the area who had raised a small crop and had a stack of wheat bundles. The Norwegians bought the entire stack, hauled it home, flailed out the grain from the straw and ground up the wheat kernels in small coffee grinders, in order to have something to eat!*

Kilian spoke to the kids of his own experience growing up in Vilas and hitching a train from Vilas to Howard to go to school and then back home again -- four miles round-trip. His account reinforced the importance of the railroad in how the state was settled. Stangohr had her students follow Highway 34 [which paralleled the rail line] to see "how our communities were settled and then we saw the railroads pull out and watched our communities die."

Using the classroom to address issues that matter to a community requires a heightened sensitivity on the part of students and teachers. Regarding the immediate concern of corporate hog farms contracting with local farmers, for example, Stangohr stated: "As more and more of the local families become involved, it's difficult to talk about [hog farms]. When you have a child in the fourth row, second seat back who's getting red in the face and her father has just signed on with corporate farms, it's really hard."[11] In reference to citizens considering the long-term environmental impact, Stangohr recounted: "[Some] people are waking up now and saying, 'No, we don't want this type of thing.'" The economic decline so much a part of the rural farm experience since the early 1970s is a part of Stangohr's students' everyday lives. "Two of my students this year have lost their family businesses -- one a farm and one a gas station. That's hard when you have children crying after class. [Though all the students] knew what was going on, nobody had ever discussed it. Nobody in a classroom. Nobody at school."

This attention to meaningful local issues -- the imminent penetration of corporate hog farming into South Dakota, the economic impact of the demise of small family farms -- makes learning more personal, more powerful. Based on their work with *Broken Heartland*, the students

[11] At the time of this writing, hogs were selling for nine cents a pound. "More farmers than ever may go bankrupt. Large corporations are not filling the local barns' needs -- they'll soon go under." Stangohr explained.

are taking an active role in teaching the community about agricultural and economic issues that affect the local setting. Because of these experiences, the students at Howard High School are more informed citizens whether they are leading or contributing to discussions at Community Vision meetings or writing letters to U.S. representatives expressing their concerns about the local impact of legislation.

Once students engage in learning that is relevant and meaningful to their lives, their enthusiasm for learning is elevated and their expectations of the schools and their educational experience deepens. Stangohr attested, "There's the clincher. If you can get them excited and [the motivation's] theirs, not mine, the learning is unbelievable." Learning at this level of impact, creates a demand for continuities from year to year. As Stangohr relays, "Now students come into my class at the beginning of the year asking if we are going to do Broken Heartland, the land thing, the interviews."

> *This outside-of-the-textbook approach to teaching is draining, but it is so easy to climb inside a textbook and never come out. And it's also so boring to do that and it truly is a very easy, boring way to teach -- to stick your nose in a textbook and stay there. -- Mary Stangohr, teacher, Howard High School*

Stangohr's first place-based Journalism project involved researching the history of each of the eight original towns [that are represented at Howard High School] and make up Miner County. The historical accounts were documented on a videotape which has been used in different Howard High classes since. The video provides an informative overview of what happens to rural towns when their schools become consolidated, their businesses die and the major roads change.[14] The following year Stangohr altered the Journalism activity to allow students greater exposure to interviewing others with a historically inquisitive, place-based focus. Freshmen began by reading biographies of famous people. Their next task was to write biographies of people who lived in the nursing home, The Good Samaritans, located across the street from the high school. Stangohr remembers that there was, at first, a real reluctance among students to talk with the elderly. "We can't go over there. They are too old." Recognizing that the lesson would be helpful in fostering inter-generational understanding as well as addressing interviewing and writing skills while learning history, Stangohr had students focus on specific questions that represented what it was like to live, work, go to school, go to war, and farm in each decade from the 1940s to the 1970s. As an expansion on this activity, students the following year researched the histories of churches in Miner County. The students realized that the churches

[14] The Miner County video is kept in the Rural Resource Center and used by Stangohr as an introduction to the *Broken Heartland* unit each year.

went the way of many small towns and small farms as a result of diminishing populations and diminishing resources.[75]

Utilizing local community issues has also enhanced teaching and learning in Mike Knutson's geography and history classes. Though only a member of the faculty and the immediate community for three years, Knutson has successfully tapped into genuine local concerns and, as a result, his curriculum around place has grown from a project involving only one of his social studies classes to interdisciplinary learning activities engaging five other faculty and an estimated 80% of the high school student population. Initially, drawing upon grammar, communication, English, and computer skills, Knutson's students designed informational town advertisements highlighting the various assets of surrounding communities. Using a variety of sources including the internet, students designed brochures that would serve to attract people to a particular South Dakota community. While reinforcing the aforementioned skills, the lesson additionally affected the way students thought of their local towns. What had formerly been thought of in terms of deficit, could now be perceived in terms of assets.

> *I've tried to incorporate the teaching of place as we go through everything. I think that's a way of helping the community while we learn geography. -- Mike Knutson, Social Studies teacher, Howard High School*

Knutson's place-based teaching philosophy is perhaps best exemplified in an interdisciplinary unit he has designed about cancer. Resource people from the community offered their perspectives on the topic. A health care professional talked about how to take care of people with cancer and spoke of preventative measures to take; a woman who had lost three brothers to cancer spoke about the disease and her loss in a very personal way; a cancer survivor offered an optimistic account. With this background, senior English students wrote on topics such as cancer and its causes, treatments of cancer, cancer rates, and conducted interviews of cancer survivors. They then relayed their information to sophomore geography students who -- in an attempt to determine if there are, indeed, areas of increased incidence of cancer, so called cancer clusters -- subsequently designed surveys to be sent out to residents of Miner County. Sophomore geography students created maps of Miner County indicating locations where cancer victims lived when first diagnosed. The survey results were compiled and charted by the algebra classes who produced line graphs indicating cancer rates in Miner county and surrounding counties. Vocational business students produced spread sheets to allow visual representation of the data. Chemistry classes work with South Dakota State University to analyze water samples from local

[75] All of these historical accounts have been featured in the Rural Resource Center. They are used by other classes and are also available to community members.

sources. Biology classes are looking at the incidence of various diseases as they analyze individual family histories. Once the surveys are compiled, biology students will attempt to determine how the lifestyles of individuals effect the cancer rates (taking into account such variables as smoking, sun exposure, pesticide contact, and others). Freshmen computer science classes will create a database of cancer victims in Miner County detailing types of cancer, type of work, possible causes (smoking, sun, chemical contact, etc.). Advanced biology students are conducting research on cancer and its causes. The psychology class has been reporting on the psychological impact of the disease on victims and their families. Business law and economics classes will report on the impact of cancer on the American consumer and economy by studying such things as health insurance rates, hospital charges, lawsuits, family budgets, among others. Journalism students will write stories to be published in the local newspaper which will make the community aware of the cancer situation in Miner County. Ultimately, the unit will culminate with a community-wide cancer awareness day.

This unit exemplifies a multi-age, interdisciplinary unit which utilizes students as researchers and teachers. The research conducted by one group of students is being analyzed and expanded upon, by other cross-disciplinary research. What started as a question in Knutson's geography class about the cancer clusters reported in the state ultimately engaged the majority of the students at Howard High in a host of complementary research projects and ongoing inquiry into an issue that has real relevance to their lives and that of their community

Nothing like this has ever happened in this town before.
-- Howard, South Dakota resident

Looking closely at a place can inspire an understanding of and concern for its well-being and sustainability, conveying an inherent message that the place is of value. Taking a closer look at that intimate history using the lens of the elderly in the community has been the focus of this activity which records the history of Howard by blocks and lots. The art class made a map of Howard, indicating lot 1, block 10 (etc.) and researched (through the County Court House Register of Deeds) the businesses or residences that had occupied that space. Upon discovering that plot 1A was originally a clothing store, the students and residents will re-construct its story. Formal community organizations such as the 87-year-old Civic League of Ladies will look at the maps and aid the documentation with their stories of the families and businesses that have impacted the town.

Community Vision Meetings

In rural settings, threatened with declining populations, further school consolidations, and the demise of family farms, the necessity of learning, growing and acting together as a

community is crucial. Community Vision Meetings were a natural evolution for a community that had realized the necessity of action, the potential impact of being informed and the power of democracy. Economic surveys, initially serving as learning tools for concerned citizens, ultimately resulted in concrete civic action. What started off as students and teachers having discussions in the school soon grew into community members facilitating meetings, discussing readings and issues in their own homes and allowed consumers to make more informed spending decisions.[36]

> *What it's about is reclaiming your land and your democracy and that's special.*
> *-- Jim Lentz, former Superintendent of Schools, Howard, South Dakota*

Rural Resource Center

Former Superintendent Jim Lentz and Howard High School teacher and Rural Resource Center director, Randy Parry, worked together to bring the community into the school with the intention of making the boundaries between community and school more permeable. In 1996, they created a Rural Resource Center specifically designed to provide a place for display of student work, community archival materials, and books (available for check-out) dealing with rural economic, social, and historical issues. The center is coordinated by two community volunteers.[37] The Center is utilized by a number of community groups -- the Child Protection Team, Student Council, FBLA officers, cub scouts, community members.

The Power of the Individual

Facilitation of meetings, requesting volunteers to work in the Rural Resource Center, coordinating student instruction of adult computer courses and introducing other teachers to possibilities for place-based work within their curriculum is perhaps most easily achieved by someone the members of the community respect and trust. Veteran teacher and sponsor of Future Business Leaders of America, Randy Parry, is instrumental to the process of community-school integration. The trust engendered by a person who has lived and taught in the school for 28 years can not be overestimated. His knowledge of, and investment in, the community, coupled with his soft-spoken inclusive mode of discussion facilitation fosters an atmosphere especially conducive to grappling with tough questions and sometimes, uncomfortable issues.[38] Parry organized a

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[36] In *Living and Learning in Rural Schools and Communities*, we provide a specific account of a Community Vision Meeting in Howard, South Dakota.

[37] The Rural Resource Center, developed by community members, Randy Parry, and students and housed in Howard High School, features displays around themes such a "The Harvest," "The Hunt," "Celebrate the Veterans," "Church Histories," Community Business History," "Cemetery History," "Depression Years in Miner County," and "Civic Pride." Students research these themes in and outside of the school. Displays of student work are coordinated by two local historians, Lulu Anderson, and Leta Trusty.

[38] Responding to a community concern about the disrepair of housing inhabited by some elderly members of the community -- people who felt frustrated because of their inability to attend to maintenance and repair themselves --

community celebration featuring people within the community who, because of their unique historical perspectives (previously relayed to students during interviews), were the topic of songs, the lyrics of which were written by students.

> *I've learned more about this town in the last hour and I've lived here all my life.*
> *-- South Dakota community person*

A Celebration of Community Orchestrated by Troubadour Larry Long

> *I attended the concert and it was incredible. I've known Sig (Sigurd Andenas) my whole life, but I didn't know all that stuff about him. The lady that I sat next to cried through the whole time. [She was] just so moved by it., -- Sarah Callies, Howard High Class of 1998*

Randy Parry offered the following opening statement for the Miner County Community Celebration featuring music composed by Larry Long based on student interviews of local people.

A few weeks ago, someone asked why we planned this event. After reflecting on that for some time, I turned back to what an experienced educator and good friend once told me the fundamental purpose of education was; to teach folks to live well in their place. People must live well economically, environmentally, politically, and in the spirit of community. So then, we are living well tonight in the spirit of community as only we can in Miner County.

This evening is about how we celebrate our lives and times together in this community we call Miner County. You will notice the program tonight includes everyone from elementary students, to high school students, to elders of this community, a true cross section of the life that exists here. Tonight, we are going to experience the lives and times of community elders channeled through the energy and vitality of the youth of this community and the music of Larry Long. We are also going to experience the talents of other local people as well.

This community is as down home American as you can get. Listening to many of the stories of the elders who are profiled tonight, as well as many conversations with other people of that generation, three themes seem to dominate or define their culture and time. One was World War II, in which many of them or their spouses served. It is not a coincidence that we had this celebration just before Veteran's Day, probably the most forgotten of American holidays. As we lose this generation of elders we seem to become less thankful for one of the greatest gifts they gave to the world -- freedom. So, thank you for the freedom we now have, and we hope no other generation will have to pay as dearly for their freedom as yours did. So tonight we celebrate that freedom.

The second is how much of this community has made its living for generations -- through tilling the soil and tending livestock. What we are is a rural people, a people whose very existence depends on how we treat our natural resources of land, air, and water. I can't help referring to a line from a song Larry Long wrote several years ago called Grandma's Penny Sale. It goes something like, "Give a prayer tonight for the farmer, give a word of thanks for their labor." So tonight we celebrate this year's good harvest and all who toiled long hours so the rest of us could benefit from it.

The last item is as American as apple pie and mom, that is this community's love for the sport of baseball. The game of baseball was a sport easily adapted to a place like Miner County, especially in its early days. It was inexpensive to play and each little pocket of people or

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Parry set up a community fund which pays students minimum wage to clean up and repair homes, thus allowing the owners to take pride in their ownership once again.

community could easily field a team. Tonight we celebrate the long storied success of baseball in Miner County, from little league to amateur, and all of the opportunities for coming together as community that baseball has brought us. More importantly than what we celebrate, is that we celebrate as a community, across generations, across town barriers, across professions, and across the petty differences we have with one another. Community is a hard word to define because of the unnatural boundaries people lay out to define their own turf. One thing we do however know is that we recognize community more easily when it does not exist in a place."

The Importance of Being in the Community

Knowledge of and interactions with community members is especially vital to ground a teacher in the day-to-day issues of a place. It is helpful, as well, in that parents, students and other people in the community have easy access to the teachers and learn to see them as contributing members of the community. This closeness to and intimacy with the place, the town, and the people engenders trust and lays the foundation for building a reciprocal relationship between school and community. Knowing that all members have an investment in the livelihood and preservation of a place can inspire a cooperative attitude toward the work that needs to be done. Getting outside the walls of the classroom and onto the open prairie is easier when one has community connections. Stangohr asserts, "It's very easy to take the kids out to a pasture that's native sod when my husband owns it and I don't have to ask permission. We can go out and tramp around. The hardest part was telling [my husband], 'No, you can't spread the manure this week, [the class is] coming out and you'll have to wait until we're done.'

> *It is so easy to do something when you have a community that is accessible and says, 'Sure, I'll come talk' and they don't charge mileage. They just do it because they like to do it and then they ask, 'Can I come back?' -- Mary Stangohr, Howard High School*

Impact on Students and Community

As a result of several years worth of Rural Challenge work, there has been a real change among students in the perceived value of their community and its rural way of life. Stangohr asserts,

> *[The kids sense that there is something of value in the community and this] is absolutely a turn around from two years ago. We surveyed the kids two years ago and 2% considered coming back and all of those were farmer's boys. The rest weren't even going to turn around on their way out of town. They were heading out and going and it's now becoming more and more acceptable to say 'Yeah, I do like small towns and I do like rural America.' I think it's directly related to discussing it and letting them know that we do have good things here in rural America. Now it's more acceptable to stay.*

Perhaps the best testament to the impact of this type of learning comes from students themselves. Tiffany Feller addressed how she approached her video documentary project around *Broken Heartland*:

I first started out, I said, 'Melinda, we should link our two problems together. You know from a farm closing and then it makes a business close.' And then we went around and videotaped all the places that are shut down. We probably drove 30 miles total -- all around like a square. We turned down all sorts of gravel roads and had a camcorder and we just videotaped all the old barns that were just all falling apart and houses that have been abandoned for many years, and a business that was shut down and we [filmed] my farm and Melinda's family's [former] business. [We] kept finding passages from the book and writing it down and the words kind of related to the scenes.

We were pretty excited with the way it turned out. When we first showed it to Mrs. Stangohr, she said, 'Wow.' She had Mr. Mock (the Howard High School principal) and Mr. Lentz (the former Howard High School superintendent) watch it too and they were going to send it to the author of Broken Heartland.

Tami Schwader, Howard Class of 1998, attributed the work she did around the book, *Broken Heartland*, as the work that had made the most impact on her over her 12 years of schooling:

[It was] definitely my junior year when we got into the Broken Heartland and we actually started relating our own history to school. It was an awakening for every one of us. When we were reading the book, it was very factual and it was boring until we got into the classroom and we discussed the issues that dealt with us personally. Then it was very interesting.... It made me realize that they weren't just teaching us to send us away or to try and keep us here. [I realized] that our way of life isn't so terrible -- that it's worth working for.

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158